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Five Years of Restriction

E. G. HOLT

CHIEF, RUBBER DIVISION, DEPARTMENT OF COMMERCE, WASHINGTON, D. C.

IN November, 1922, not many Americans would have believed it likely that the British policy of restriction of rubber exports was to be in full force and effect five years after it became a law. Still fewer would have foreseen a possibility that the purpose of the scheme which was originally intended to realize a price range of 24 cents to 36 cents per pound would be changed to an attempt to maintain a minimum price of 42 cents per pound for the commodity. The possibility of an artificial shortage resulting from restriction was early foreseen, then forgotten in the comparative tranquillity of 1923-1924, and finally realized in 1925. Perhaps nobody in 1922 would have believed that with a price range between 33 and 41 cents during 1927, and with producing companies all declaring very satisfactory dividends, more dissatisfaction with restriction would be expressed by the British press and individuals connected with the British planting industry than during 1923-1924 when the price averaged well under 30 cents per pound. Had the British producers believed that world consumption of rubber was going to increase from less than 300,000 tons in 1921 to 580,000 tons in 1927, very likely restriction would never have been attempted; increased consumption of rubber has not, however, brought any indication that producers now believe the necessity for restriction no longer exists.

The course run by restriction is generally well known. During the first and second restriction years, the market price of rubber failed to respond sufficiently to the reduced exports to result in steadily increasing exportable allowances, and it was well into 1925 before this happened. Meantime world stocks of rubber became depleted and an artificial shortage with abnormally high prices resulted. It was impossible for producers to increase production during late 1925 and 1926 as rapidly as the quarterly increased quotas and the higher standard production assessments for those years permitted. Labor had to be recruited and trained and it was probably as much due to this factor as to overassessment that the complicating mass of unused export rights accumulated during 1925-1926. In the summer of 1926, the basic restriction rules regarding the price level necessary to maintain unrestricted production were changed, and the regulations were otherwise modified to meet the situation of the then rapidly declining market price. These changed rules are still in effect. They were designed to prevent further decline in the price of rubber in 1926 and their continuance after the temporary situation was relieved can only be construed as an attempt to establish a higher price level. The old rules were at least intended to result in increased exports as demand (reflected in what has been generally described as a "fair" market price) showed it to be necessary; the new rules are intended to restrict production except at an uneconomic market price. In the new rules conditions under which increased releases are granted are more difficult than in the original rules at ordinary market prices; by maintaining a 48-cent price level for a restriction quarter the resulting increase in exports now would only be as much as was formerly granted at a price level of 36 cents.

Meantime a series of important trends have become evident, and their discussion has been the subject of a great amount of printed material in the American and foreign press.

> ***BRITISH producers must eventually decide definitely whether it is preferable to continue restriction of production in order to maintain prices at a level far above what the original regulations provided, thus holding the umbrella over their Dutch and other competitors, or***
>
> ***On the other hand, whether to arrange for the termination of restriction at some definite future time. The history of the past five years shows that a continuance of this policy will eventually cause a shift of production to non-British areas.***

Consumption of rubber has increased more than was anticipated by the most optimistic producers in 1922. During the 1925-1927 three-year period, world consumption of rubber totaled 1,674,000 tons, the annual figures being: 1925, 553,000; 1926, 541,000; and 1927, about 580,000 tons. Owing to the recovery of the rubber manufacturing industries in England, Germany, Russia, and Belgium, and the great strides that have been made in the Canadian and Australian industries, foreign countries in 1927 accounted for about 34 per cent of world consumption as compared to 27 per cent in 1922. The United States percentage has steadily declined, and many observers believe that foreign consumption will for several years continue to increase more rapidly than consumption in the United States. Others foresee a foreign development

in the use of reclaimed rubber that will tend to offset increased raw rubber consumption in a manner similar to what has resulted in the United States since 1925.

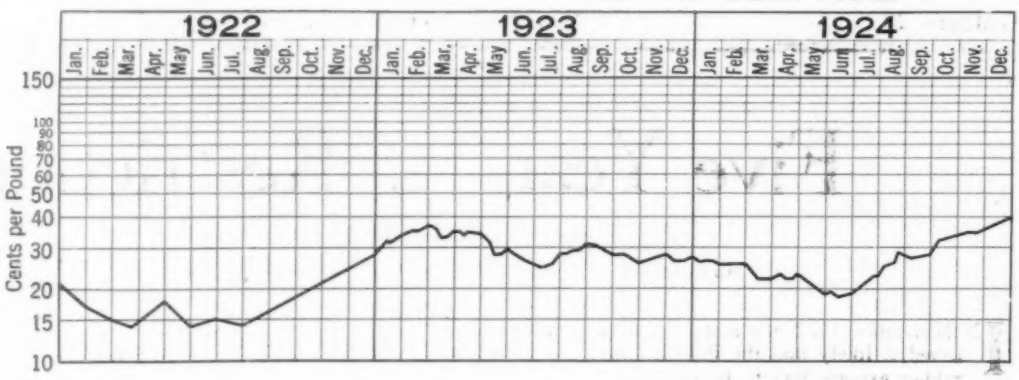
World production of rubber in 1922 totaled about 406,000 tons, while for 1926 and 1927 the annual net imports of rubber into consuming countries averaged about 625,000 tons, considerably in excess of world consumption for the same years. The 1926 production represented nominally full output, but actually Malayan producers were unable to build up labor forces rapidly enough to take advantage of the allowable exports; the 1927 production was obtained in spite of severe restriction, nominally at least, from May onwards in Malaya and Ceylon. It appears that world output at full capacity might readily have averaged 650,000 tons annually for the two years. Should any shortage of rubber supplies occur within the next two years it would have to result from restriction of production; there is no evidence that the world is incapable of producing enough rubber to supply manufacturers' needs.

The price of raw rubber has ruled much higher since November, 1922, than in the two years preceding that date. This is often regarded as one of the successes of restriction. Consideration of the increased consumption of rubber since 1922 makes it fairly arguable that the growing demand would in any case have caused higher prices. Certain pro-restriction writers have in fact settled on increased demand the entire blame for the high prices of 1925, ignoring the effectiveness of restricted exports in reducing world stocks below the safety mark, and the failure of restriction authorities to take any remedial action to alleviate the pinch until it was quite ended. It may be pointless to consider what might have happened in other circumstances, but few people really believe that if restriction had not been adopted the price of rubber would have continued much longer at the low 1922 level, or would have climbed to $1.21 a pound in 1925. During 1927, when the price dropped as low as 33 cents for a time, there was no diminution of output, which indicates that the 42 cent price minimum which would increase export allowances is an uneconomic price level for rubber, not essential in order to maintain rubber production on a profitable basis.

The tremendous price fluctuations in crude rubber during 1925 and 1926 are common knowledge. To protect themselves so far as might be against similar future occurrences, certain American interests have cooperated in the so-called buyers' pool. Much of the credit for relative price stability during 1927 is generally given to this organization; other factors operating at the same time which contributed to this result include the growing influence of the Rubber Exchange of New York, and the fact that increased world stocks of rubber were balanced by optimism among producers as to future prospects, which made them willing to hold rubber below the restriction minimum price of 42 cents.

The net result of these various factors has been to keep the market fairly even during 1927, and this has of course been directly beneficial to manufacturers and indirectly to the public, reductions in prices of finished goods to consumers having followed in due course.

The increased popularity of reclaimed rubber, especially in America, is one of the outstanding developments caused by restriction. Except for 1925 high prices of crude rubber, manufacturers would have been slow to experiment with reclaimed rubber. During the period of low crude rubber prices reclaimed rubber had been neglected and there was a general lack of understanding of its utility and value in compounds. Forced by high prices to look for a substitute, experimentation with reclaimed rubber soon showed manufacturers that it possessed far greater adaptability than had been realized. The United States consumption of reclaimed rubber was less than 80,000 tons in 1924; in 1925 it increased to 137,000 tons, and in 1926 to 165,000 tons. Trade experts generally estimate 1927 consumption at 180,000 tons or more. Reclaimed rubber is not at present used to the same relative extent in foreign countries as it is in the United States.



N. Y. Outside Market Closing Prices of Ribbed Smoked Sheets, 1922-1924.

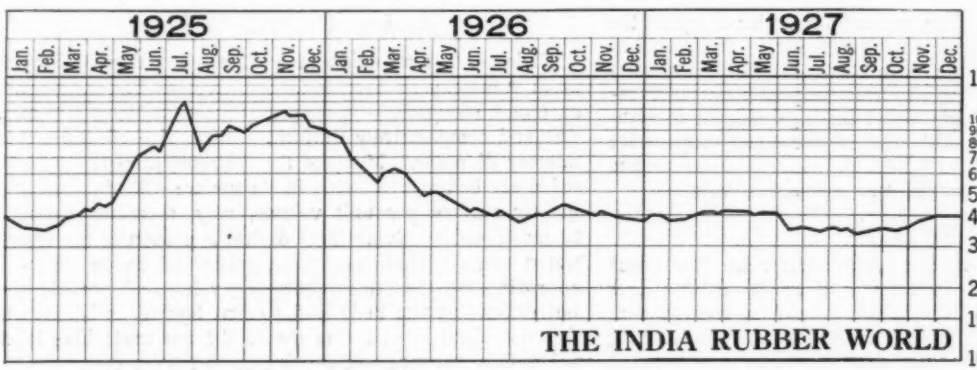
In Europe there is a certain prejudice against reclaimed rubber, partly because reclaimers there have not developed grades of reclaim equal in quality to the American product, partly because the use of reground factory scrap and shoddy (which does not give the same favorable results as reclaimed rubber) is more common in Europe, partly because European rubber manufacturers have not learned how to use reclaims correctly, and partly perhaps because of propaganda against reclaimed rubber. There are distinct signs however of a growing use of reclaimed rubber in foreign countries, and the establishment of foreign branch factories by American rubber manufacturers is likely to eventually cause their foreign competitors to use reclaimed rubber as it is used in this country, especially in mechanical rubber goods and in tire beads, etc.

British possessions have shown a constantly declining degree of control over world production of crude rubber. In 1922, British colonies and territories in the Middle East produced 67 per cent of the world's rubber; in 1923, 58 per cent; in 1924, 55 per cent; and in 1925, 53 per cent; constantly lower. The British share increased in 1926 when production was again practically unrestricted, but of the world production in 1926, the British share was only 59 per cent. In 1927 it has been only 54 per cent. In 1928, if restriction to 60 per cent standard production remains effective, British territories will *for the first time since* 1913 contribute less than 50 per cent of the world's annual rubber production.

The above may be more briefly stated by saying that countries not under the British flag produced only one-third of

the world's rubber in 1922 but will produce over one-half in 1928.

This growth of production has been most remarkable in the Netherland East Indies, particularly in native regions. The dry weight production of Dutch native rubber in thousands of tons has increased as follows: 1922, 20; 1923, 37; 1924, 56; 1925, 85; 1926, 85, and 1927 about 93. The somewhat scanty available evidence indicates future growth of production on a considerable scale. There has likewise been a steady increase in production in Indo-China and Siam and in guayule rubber from Mexico, while the larger production of wild rubber in Brazil and Africa is noteworthy. Several plantations have been reopened and much new planting done in Africa while recent announcements of activities of a leading American automobile manufacturer in the Amazon promises future development there.



N. Y. Outside Market Closing Prices of Ribbed Smoked Sheets, 1925-1927.

What factors are responsible for this decline in British control of rubber production? Pro-restriction writers generally claim it is the result of planting which had been done before restriction was made effective. To a considerable extent this is true; it will explain the decline from 67 per cent in 1922 to 59 per cent in 1926. For the lower British percentages in 1923, 1924, 1925, and 1927, and the expected lower percentage in 1928, restriction is alone responsible. In the absence of restriction, the relative control of the British planters would have been maintained much better, since all producers would have been equally affected by the situation prevailing. With restriction hampering Brtish exporters and forcing the price upwards, non-British planters have been stimulated to produce at capacity, and not only that but also to plant much more extensively than their British neighbors. The effects of this planting will be more evident as the huge untapped native areas in the Netherlands East Indies come into production in future years, further reducing the annual percentage of British-grown rubber. From the Empire point of view, this situation can hardly be looked upon with equanimity.

The raising of the restriction pivotal price has weakened the arguments in favor of restriction. Economic writers in England who were in favor of restriction "to save the industry" have not been in favor of restriction "to raise the price of rubber to 42 cents." The higher price level has further stimulated the use of reclaimed rubber, and the production of crude rubber in non-British areas.

These factors have in turn brought about some disaffection in the ranks of producers, who see the Empire furnishing a smaller percentage of the world's rubber supplies each year. Attempts are being made by the British Rubber Growers' Association to stimulate rubber consumption by propaganda and advertising new uses for rubber. What is needed to stimulate consumption is a lower price, so that tires may be cheaper, and so that more people the world over can afford to maintain motor cars. Tires use about 80 per cent of the world's rubber and inexpensive tires are today a necessity.

According to the *Malay Mail* "in many quarters restriction is regarded today as on trial for its life, and unless tangible results are achieved in bringing supply closer to consumption in the near future, the ranks of those prepared to scrap the scheme and give the law of supply and demand free sway are likely to receive a considerable accession of strength." This explains the rumored drastic reductions in Malayan assessments of standard production this year.

"For those who take the longer view of the future of rubber," states the London *Rubber Age*, "methods of restriction offer but a temporary solution of the problems of supply and demand. For the next few years they will probably be effective in a fluctuating way, but that they alone can permanently stem the growth of production is not believed by any student of statistics. The only lasting security for the producing industry is a progressive increase in consumption, a truth which is being so strongly emphasized in the efforts of the Rubber Growers' Association to foster new uses for rubber."

British producers must eventually decide definitely whether it is preferable to continue restriction of production in order to maintain prices at a level far above what the original regulations provided, thus holding the umbrella over their Dutch and other competitors who are left free to produce at capacity, or on the other hand whether to arrange for the termination of restriction at some definite future time. A decision in favor of continuance of the present scheme might well be hoped for by one inimical to the British rubber plantation industry, because the history of the past five years shows that a continuation of this policy will eventually cause a shift of production to non-British areas. A decision in favor of termination of restriction would probably not be favorably received by rubber producers at this time. A reduction of the price level on which the scheme is based, if made now, might severely affect the market; it might have been done last October but the opportunity seems to have now passed.

Restriction has bred dependence upon the government among British planters to such an extent that it will probably be difficult for them to provide private alternatives to take its place if it should be discontinued by government. Some sort of private alternative would have to be worked out, either with or without cooperation from producers outside the restricted areas, and the recent discussions in London between Dutch planters who favored a central selling scheme and British rubber growers was regarded by some observers as a first step. It is to be expected that private initiative will at length evolve a solution; the period necessary for this depends on how long the British industry is willing to continue to disregard economic trends.

Rubber Compounding Practice[1]

Zinc Oxide, Magnesium Carbonate and Glue—Pigments of Marked Value for Improving Tensile Properties, Abrasive Wear in Rubber Compounds

WEBSTER NORRIS

ZINC oxide, magnesium carbonate and glue comprise the materials considered in this article. Before the general adoption of carbon black by the rubber industry this group of ingredients was the compounder's chief reliance for producing tough rubber mixings adapted to withstand abrasive wear. Although of secondary importance in that respect, they are esteemed and used by compounders for their individual technical and economical values.

Zinc Oxide

When horse drawn vehicle rubber tires came into vogue in the 90's, zinc oxide took the lead as the chief rubber reinforcing material then available. In American practice it held this position by general consent until the beginning of the World War. At that time the imperative demand for zinc and its products occasioned the substitution of carbon black for zinc oxide in tire treads and in many other wear resisting goods. Apart from technical considerations the high volume cost of zinc oxide cuts it off on the score of economy as a competitor of carbon black.

Without doubt one of the toughest and best wearing carriage tire stocks was the following. Its wearing value depended largely on the liberal employment of zinc oxide. It found its way ultimately into the compounding records of many rubber companies, and is here published for the first time.

SOLID CARRIAGE TIRE STOCK

Hard fine Para	37.25
Zinc oxide	30.00
Litharge	15.00
Dutch white lead	15.00
Sulphur	2.75
	100.00

Cure 38 minutes at 285° F.

This mixing requires to be milled cool to prevent scorching. The powders are added separately in the order named and the mixing should be batched out thin for prompt cooling before storing.

Three processes are used for the manufacture of zinc oxide, the American, Kadox and French. In the first and second processes the product is made direct from zinc ore, and in the third it is obtained direct from metallic zinc or spelter.

American Process Oxides

Any of the well-known standard grades of American process zinc oxide possess easy factory working quality and reinforcing action. The latter is best shown by the high resistance to tearing due to its knotting effect on the fibers of the rubber. The lead content of the common oxide, calculated as litharge, does not exceed 0.04 per cent. Its particle size is not uniform but averages 0.3 microns.

A specially selected quality has the same particle size as the ordinary, but its lead content, calculated as litharge, does not exceed 0.15 per cent. The low lead content and the careful control of other impurities make it especially desirable for white rubber goods.

[1] Continued from INDIA RUBBER WORLD, January 1, 1928, pp. 57-58.

Kadox Process Oxides

Kadox is a zinc oxide in a class apart from either the usual American or French process oxides. For the present purpose it need only be described as a zinc oxide of extremely fine and comparatively uniform particle size of about 0.15 microns diameter. Many of the desirable properties of zinc oxide are believed to reside in its surface. Kadox, with its greater surface per unit volume, may, therefore, properly be considered as giving these desirable properties in concentrated form. There are three grades of kadox all with approximately the same reinforcing value and particle size but differing as to their lead content figured as litharge as follows: black label not to exceed 0.1 per cent; blue label, 0.1 to 0.25 per cent; red label, 0.25 to 1.0 per cent.

Red label kadox is the most widely used brand, due to its relatively low price. It is extensively used in solid tires, usually diluted with 50 per cent of ordinary zinc oxide. It is also being used in considerable amounts in tire carcasses, heels and soles.

Blue label kadox is used in colored rubber where the presence of the slight amount of lead does not seriously discolor the product. Black label kadox is used in light colored goods. The dead white color which it gives is preferred, in some cases, to the cream color obtained with ordinary zinc oxides.

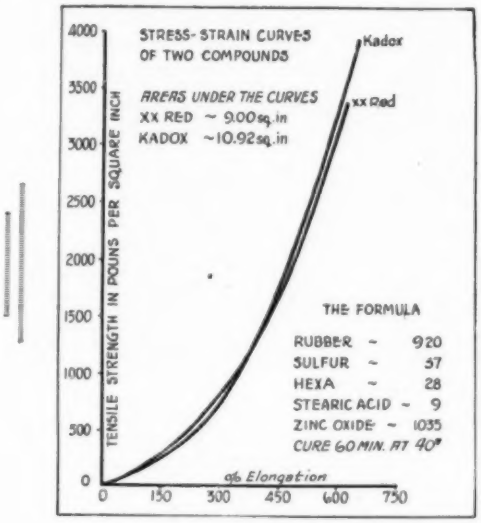
French Process Oxides

The French process zinc oxide grades are distinguished as, white, green, and red seal brands. White seal is a brilliant white, bulky and very fine. Green seal is equally white but less bulky. Red seal is not as white or fine as either of the other brands. It has a lead content not exceeding 0.4 per cent figured as litharge. Its particle size is approximately the same as that of the ordinary American process oxide, but it does not contain the extreme fines, therefore, it has a lower tear resistance and is less satisfactory for general rubber compounding practice. Since it is a French process oxide it contains less impurities than the common oxide and is nearly equal to kadox in this respect. The chemical purity of an oxide is a minor matter; the chief consideration is its physical properties. The important chemical difference between French and American process oxides lies in the fact that the former contains a minimum of water soluble salts and is used in electrical work where the presence of such salts is considered objectionable. Kadox is gradually replacing red seal for most rubber compounding purposes.

In the rubber industry of the United States and Canada American process oxide and kadox are used virtually to the exclusion of the French process oxide. Although zinc oxide no longer holds the exclusive position it once did as a rubber reinforcing pigment it still is the outstanding one for tough wearing white stocks and for solid tires where its good heat conductivity serves to prevent the destructive accumulation of internal heat in the body of the tire. In addition to their reinforcing value all brands of zinc oxide

function as catalyzers stimulating the action of organic accelerators. The practically universal use of the latter, therefore, virtually necessitates including several per cent of zinc oxide in every mixing. There are a few exceptions where litharge is substituted for zinc oxide as activator.

The relative reinforcing values of ordinary XX red zinc oxide and of kadox are compared in the stress-strain curves shown in Graphs 1 and 2. The formulas used were re-



GRAPH 1. XX RED ZINC OXIDE AND KADOX COMPARED IN A STOCK CONTAINING NO RECLAIM.

spectively a gum stock and one containing a large percentage of whole tire reclaim. In each instance the kadox effected greater reinforcement than the XX red zinc oxide. The relative reinforcing values are indicated by the areas under the curves. In the case of the gum stock, Graph 1, these areas were for the XX red brand 9.00 square inches and for the kadox 10.92 square inches, equivalent to a gain, by using kadox, of over 21 per cent. In the case of the stock containing reclaim, Graph 2, the areas under the curves were XX red, 4.08 square inches and kadox, 5.70 square inches, a gain of practically 40 per cent.

Leaded zinc oxide is produced from zinc-lead ore by the usual American process. Such mixed oxides do not have the toughening effect of pure zinc oxide and are very little used. However, in many mechanical rubber goods and molded articles of dark color leaded zinc oxide can be substituted for the lead free product, especially if no accelerators are used, or one that can be activated by litharge. The use of leaded zinc oxide is of no special economic advantage.

Magnesium Carbonate

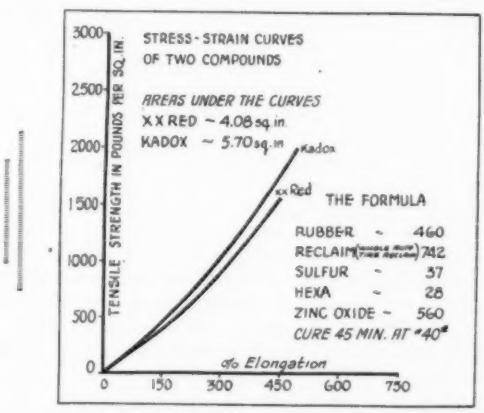
Light magnesium carbonate ranks as a reinforcing ingredient of considerable advantage in rubber compounding. Its properties and value were investigated experimentally by H. A. Greider.[2]

Light magnesium carbonate or magnesia alba is a basic magnesium carbonate precipitated by boiling a solution of magnesium bicarbonate. Its composition is quite constant when rigid control of the conditions of precipitation is maintained. The commercial product is an extremely fine inert white powder insoluble in water. By the grinding process of manufacture its natural needle-like crystalline form is broken up and the powdered material consists mostly of particles measuring 1 millimicron or smaller. Their size and uniformity depend upon the conditions of precipitation and grinding. The pure material is very bulky, enclosing several times its own volume of air. Its absolute specific gravity is 218. As a compounding ingredient it is included in the class of reinforcing pigments. Its general effect in a rubber compound is to stiffen, harden and toughen it and increase the tensile strength, if not used in excess.

Greider found that if rubber is cured with 5 per cent of sulphur and sufficient litharge as accelerator to give a flat curve over a vulcanization period of 40 to 50 minutes at 42 pounds steam pressure, 143 degrees C., maximum reinforcing effect is given by 9 volumes of magnesium carbonate per 100 volumes of rubber. This corresponds to about 21 parts by weight on the rubber. If to a pale crepe rubber basic mix testing 2,575 pounds per square inch tensile strength an addition of 9 volumes of magnesium carbonate is made the tensile strength is increased to 3,000 pounds. The ultimate elongation is decreased by the same addition from 700 per cent to 655 per cent, giving a stock which is appreciably less resilient. Thus the resilient energy of the basic mix rises from 318 foot-pounds to 475 foot-pounds per cubic inch, or 49 per cent.

The total energy of resilience is derived from the area between the stress-strain curve and the elongation axis. It serves to measure ability to withstand abrasive wear. Rubber compounded with magnesium carbonate shows high energy of resilience. Since the stock has high tensile strength, high ultimate elongation and a fairly flat stress-strain curve, the area included between the curve and the elongation axis is large. Hence the conclusion that magnesium carbonate has a definitely beneficial effect on the wearing property of rubber.

Two facts limit the use of magnesium carbonate as a compounding ingredient, (1) the maximum reinforcing effect is obtained by the addition of only about 21 parts by weight to 100 parts of rubber. (2) Magnesium carbonate



GRAPH 2. XX RED ZINC OXIDE AND KADOX COMPARED IN A STOCK CONTAINING RECLAIM.

imparts high permanent set to rubber. This seems to be related quite closely to the crystalline character of its particles. Nine volumes of the filler produce 23 per cent permanent set, and 20 volumes produce 30 per cent set. The explanation for this high permanent set is that, when the rubber is under tension, the crystals shift positions, due to the poor bonding between the particles and the rubber matrix, so that when the tension is released the rubber cannot return to its original position because of the interlocking of the crystals.

The aging of magnesium carbonate stocks compares favor-

[2] "Magnesium Carbonate as a Compounding Ingredient in Rubber," by H. A. Greider, INDIA RUBBER WORLD, Nov. 1, 1921, pp. 112-113; "The Physical Properties of Rubber Compounded with Light Magnesium Carbonate," by H. A. Greider, *J. Indus & Engr. Chem.*, May, 1922, pp. 385-395.

"The Resilient Energy and Abrasion Resistance of Vulcanized Rubber," by H. A. Greider, *J. Indus. & Engr. Chem.*, May, 1923, pp. 504-511.

ably with those containing zinc oxide, especially if only about half the zinc oxide is replaced by magnesium carbonate.

Magnesium carbonate is not used in either solid or pneumatic tires as extensively as before 1914. It was never as highly favored in America as in Germany and England. Limited quantities, however, are still used in some solid tires because magnesium compounds have better heat conductivity than gas black compounds, therefore they do not generate excessive temperatures in service. The larger proportion of magnesium carbonate now being used in the rubber industry goes into soles and heels, footwear compounds, druggists' sundries, and mechanical rubber goods specialties.

Glue

The adoption of glue as a rubber compounding ingredient is credited to The Goodyear Tire & Rubber Co., Akron, O., about 1915. Its use was developed independently in other plants, notably by Dr. K. J. Thompson, of The Mansfield Tire & Rubber Co., Columbiana, O. Circulation of the false impression that glue could be used as a substitute for rubber caused its value as a compounding ingredient to be somewhat discredited. In rubber mixings glue acts to disperse other ingredients[3] and functions mildly as an accelerator of vulcanization. It also stiffens rubber, increasing its resistance to abrasive wear. During the war it was widely used in tire treads. Since then its use for that purpose has been practically discontinued owing to the superior reinforcing effect obtainable with carbon black.

Also the rapid development of high power organic accelerators rendered glue obsolete as an accelerator. It is used to a limited extent in some black tire treads to aid in the dispersion of carbon black. Its presence also facilitates calendering and tubing of treads, but is not desirable in frictions because they require adhesive quality and flexibility rather than stiffness. While largely superseded in rubber mixings, glue is still employed as an adjunct to rubber and enters into some tire treads and sidewalls and is used in the production of very tough, low gravity light colored stocks where it can replace zinc oxide on a volume basis. In that way it finds favor in soles, heels, white tire treads, etc.

Finely ground glue suitable for dry compounding into crude rubber should conform to the following specifications: It should consist of material obtained only from bones and be free from wood, grit and hair. Tests of a representative sample should not show impurities in excess of the following maximum limits: ash, 5 per cent; moisture, 9 per cent; acidity calculated as sulphuric acid, 0.75 per cent; grease, none; foreign matter, none. The foreign matter is determined by dissolving the representative sample in sufficient water and screening this solution through a 100 mesh screen. The residue on the screen is thoroughly washed before being dried on a watch glass and weighed. This residue must be free from cinders, sand, or other gritty materials, wood or hair.

Powdered glue of the quality above indicated can be milled into crude rubber. Its contained moisture practically disappears in the process of breaking down and blending on the mill and causes no trouble. Care and experience are necessary to perform this blending operation without scorching the glue. In the absence of experience it is advisable to utilize the rubber-glue and rubber-glue-carbon black stocks such as those obtainable under the brand name of "Rexhide," "Rex-black," etc. In this case the rubber-glue blend is used as a master batch and broken down with the crude rubber in the same manner as reclaim.

Another method for preparing glue for compounding is to make it into a stiff gel. This can be done by cooking the glue with about 15 per cent of its weight of water in a steam jacketed kettle until liquid, cool over night and cut into chunks. Glue in this form can be blended in the desired proportion with crude rubber as the latter is broken down. The moisture escapes by the heat of milling and subsequent mixing. Modern mixings for rubber heels and gasoline hose tube containing a liberal proportion of glue are included among the typical compounds which may be found in the above tabulation.

Typical Rubber Mixings Containing Zinc Oxide, Light Magnesium Carbonate and Glue

GASOLINE HOSE TUBE

Smoked sheets	100.0
Whole tire reclaim	40.0
Glue	**15.0**
Soft gas black	15.0
Clay	25.0
Litharge	8.0
Accelerator S. S. No. 2	3.0
Sulphur	3.5
	209.5

Cure 60 minutes at 274 degrees F.

BLACK SHOE SOLE

Rubber	20.0
Whole tire reclaim	60.0
Zinc oxide	5.0
Magnesium carbonate	**7.0**
Carbon black	33.0
M. R.	5.0
Stearic acid	1.5
Pine tar	1.5
Degras	1.5
Sulphur	2.0
Accelerator 808	0.4
	136.9

Cure 12 minutes at 316 degrees F.

TIRE FRICTION

Smoked sheets	100.00
Carbon black	10.75
Kadox	**5.00**
Sulphur	3.50
Hardwood pitch	3.00
Accelerator No. 50	1.25
	123.50

Cure 1 hour at 287 degrees F.

TIRE TREAD (ENGLISH)

Fine hard para	62.00
Magnesium carbonate	**21.00**
Litharge	7.00
Zinc oxide	2.75
Lime	0.25
Sulphur	7.00
	100.00

Quick curing stock antedating the introduction of organic accelerators. Cure 1½ hours at 287 degrees F.

WHITE TIRE TREAD

First latex	42.00
Zinc oxide	**53.00**
Lime	0.50
Sulphur	2.25
Degras	1.75
Aniline	0.25
Hexa	0.25
	100.00

Cure 1½ hours at 287 degrees F.

SOLID TIRE

Rubber	100
Zinc oxide	**91**
Kadox	**91**
Carbon black	9
Sulphur	4
D. O. T. G.	0½
Pine tar oil	0½
M. R.	0½

Cure for 36 by 6 size tires, 1 hour to rise to 287 degrees F. and 2 hours at that temperature.

BLACK HEEL

Rubber	10.0
Whole tire reclaim	50.0
Clay	25.0
Magnesium carbonate	**15.0**
M. R.	5.0
Zinc oxide	2.0
Sulphur	1.5
D. O. T. G.	1.0
	109.5

Cure 12 minutes at 155 degrees C.

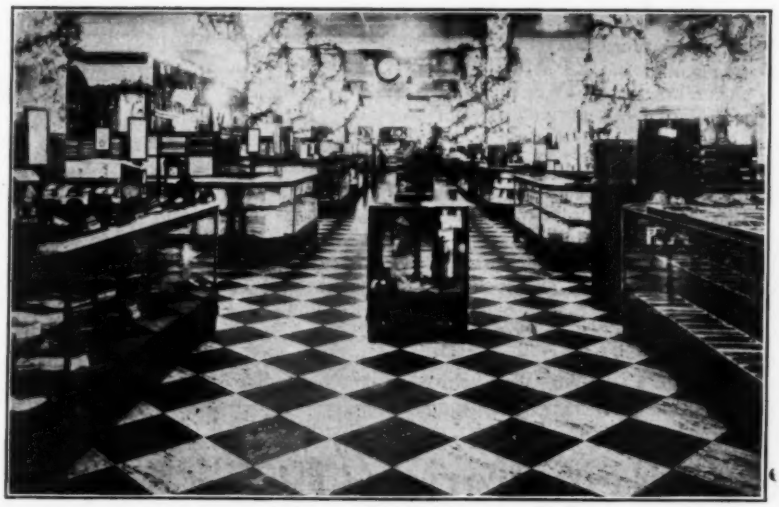
BLACK HEEL

Smoked sheet	100
Tube reclaim	60
Glue	**25**
Carbon black	90
Magnesium oxide	7
Zinc oxide	10
D. P. G.	1
M. R.	12
Sulphur	6
	311

Cure 10 minutes at 307 degrees F.

[3] "The Influence of Glue on the Reinforcing Effect of Magnesium Carbonate in Rubber." By H. A. Greider, *J. Indus & Eng. Chem.*, February, 1924, pp. 151-155.

Tests for Rubber Tiling



A Discussion of Proper Tests for Non-Rigid Floors In Which Rubber Is a Component Part

JAMES H. STEDMAN

President, Stedman Products Co., South Braintree, Mass.

NO more successful non-rigid floor covering has been devised than a good quality, correctly vulcanized and properly laid rubber tiling. Certain standards must be met to attain this result otherwise serious failure may ensue in service.

Buckling is by far the most common cause of failure in rubber floors. This is caused, in practically every instance, by the presence of moisture in the under floor whether of wood or concrete. Buckling does not appear usually until the floor has been laid for perhaps a week or even two or three months when the surface bulges upward in localized areas or curls upward around the edges. For this trouble the only remedy so far discovered is complete elimination of moisture from the under floor before the tiling is laid, supplemented by definite care in service to prevent flooding the surface with water. Should water penetrate a concrete floor before or after the tiling has been laid trouble from buckling can be expected. The moisture curl or bulge is common to all non-rigid flooring and is a source of trouble against the occurrence of which constant safeguarding repays the effort.

A second cause for curling and bulging are faulty methods of tile construction. Cushion back tiling has a base of different composition from the face. This causes unbalanced tensions which induce curling almost as soon as the tile is cured. This construction is dangerous and is not justified even by its lower cost. Another result of this construction is lack of firmness without the lack of reasonable resilience. Firmness is necessary to prevent the tiling from spreading or creeping. It is essential that the rubber stay in position once it is laid upon a satisfactory under floor. Firmness without hardness and suitable pliability to meet the reasonable fluctuation of contour in the under floor without cracking is the real test of a satisfactory rubber floor covering.

The laboratory tests to predetermine the probable service value of rubber tiling include tensile strength, abrasion resistance, absorption to water and resistance to ignition.

Tensile Strength

Determination of the tensile strength of tiling is made on a sample of stock cured 15 to 18 minutes under 450 pounds per square inch pressure. A test sample strip in dumbbell form is died out lengthwise of the calender grain of the stock. This is broken in the usual way on a Scott rubber tester and the tensile figured on the area at break which should average 1,200 pounds per square inch on a group of tests. The permanent set measured not less than 5 minutes nor more than 10 minutes after the tensile break test should not exceed 5 per cent.

Abrasion Test

Resistance to abrasive wear is second only in importance to tensile strength. It is interesting to note that records of the wearing of interlocking tiling, which was the predecessor of the present type of rubber tiling, show that it has withstood 30 years of service before requiring replacement. The wear was probably as much by washing and scrubbing as by foot wear.

The accompanying illustration shows a floor covered with modern type tiling. The view was taken when the floor was laid in 1922. No appreciable wear is evident after 5½ years of wear. It is estimated that in that period of service it has been traversed by over 20,000,000 people and its only protection are mats at the street door entrances.

Abrasive wear laboratory tests as applied to tires, footwear, belting or hose are not indicated for rubber flooring because the latter is built to remain in a fixed position without flexing. The preferred method of abrasion test for rubber tiling is as follows.

Not less than three samples of the same composition are tested and the average result is accepted as the correct test. The sample is held against the under side of the grinding wheel by a pressure of 11.5 ounces. The wheel is of carborundum, 6 inch diameter, ¾ inch face; number 60 grit, grade J; bond G-5. It is run at a speed of 550 R.P.M. Prior to each test the wheel is cleaned by the application of a stiff wire brush to its face for at least a half minute. The grinding action is applied lengthwise of the grain of the sample. Before and after testing the sample is weighed to within 0.01 gram. The grinding wheel is applied during a period of 10 minutes.

The sample is then removed and wiped clean before reweighing. Knowing the specific gravity of the test sample its abrasive resistance is calculated as the reciprocal of its volume loss, as for example:

Original weight	46.06 g.
Weight after test	45.04 g.
Loss of weight by grinding	1.02 g.
Specific gravity of sample	1.84
Volume loss by grinding, found by dividing loss in grams by specific gravity of sample 1.02 ÷ 1.84	0.554 c.c.
Abrasive resi tance 1 ÷ 0.554	1.81

Abrasive resistance determined after this method should not be less than 1.70. The results obtained are comparative and indicate relative wearing quality as between the samples tested.

Absorption Test

Rubber tiling should be practically non-absorbent to water and unaffected as far as possible by the detergents used in cleaning. Strong caustic cleaning powders and oil soaps should not be used. The following simple test for absorptive quality is sufficiently reliable for practical use.

Water is applied to the upper surface of a weighed tile for 24 hours. The tile should preferably be molded and vulcanized with its surface concave. If not, a retaining half-inch-high circular bank of wax should be built on an 8-inch square tile leaving a clear space of 6 inches diameter to contain water. In either case the concavity or wax enclosed space is filled to the depth of a quarter of an inch with clean water and allowed to stand at room temperature for 24 hours. The sample is then wiped dry with a cloth and allowed to air dry for 5 minutes before weighing. The gain over the original weight should not exceed 0.05 ounces for 6 inches diameter exposed to the water. This test simulates service conditions better than absorption by immersion and is therefore preferred.

Hardness and elasticity of tiling are qualities regulated by compounding and cure and may be determined for comparison with a standard by means of such instruments as the Shore durometer and elastometer.

We might go on with tests for penetration (showing permanent depressions) the cure for which is proper compounding, a firm density without hardness being the desirable factor.

A fire resistance test is one in which one rubber compound is virtually the same as another of the same gravity. They are all quite sufficient to withstand any ordinary cause of fire such as lighted cigarettes, sparks from open fires, etc.

The real test that the prospective buyer should make is that of tensile strength as has been outlined above. Coupled with that and of even greater importance is the experience and reputation of the maker and the care of the laying organization which he employs. After all is said and done, "Time tells the tale."

Motor Car Registration 1927

Nearly Six Per Cent Gain Over 1926

There were 23,579,002 motor vehicles registered in the United States during 1927. This is according to the figures just released by The B. F. Goodrich Rubber Co.'s statisticians, who have compiled their records from January 1 totals computed by the registrars of each state.

Motor vehicle production for 1927 is estimated at 3,530,000, indicating a heavy replacement business. This figure added to the registration figures for 1926 gives a total of 25,803,643. Since 1927 registration returns show only 23,579,002 motor vehicles in use, the difference or 2,224,641 would indicate the number of motor cars scrapped or discarded. Replacements during the year were 9.4 per cent of the total registration.

New York State still holds first place in number of motor vehicles, but California is running a very close second. New York's percentage of increase was 9.8 while California's registration climbed only 5.5 per cent. On the other hand California possesses a motor vehicle for every two inhabitants or an average of two per family, which is figured at 4.6 persons, while New York possesses one car for every 5.2 persons or not quite one car per family.

For the first time in the history of the automotive industry four states showed a drop in registration. Florida leads with a loss of 10.4 per cent over 1926. Maine was second with a loss of 5.8 per cent.

The District of Columbia made the highest gain of any state with 17.5 per cent increase in registration. Mississippi takes second place in percentage of gain with 13.9 per cent increase to its credit.

It is coincident that the percentage of increase in three states was identical to the percentage of increase obtained in 1926. New York, Maryland and New Hampshire each showed the same per cent of increase in 1927 as was shown in 1926.

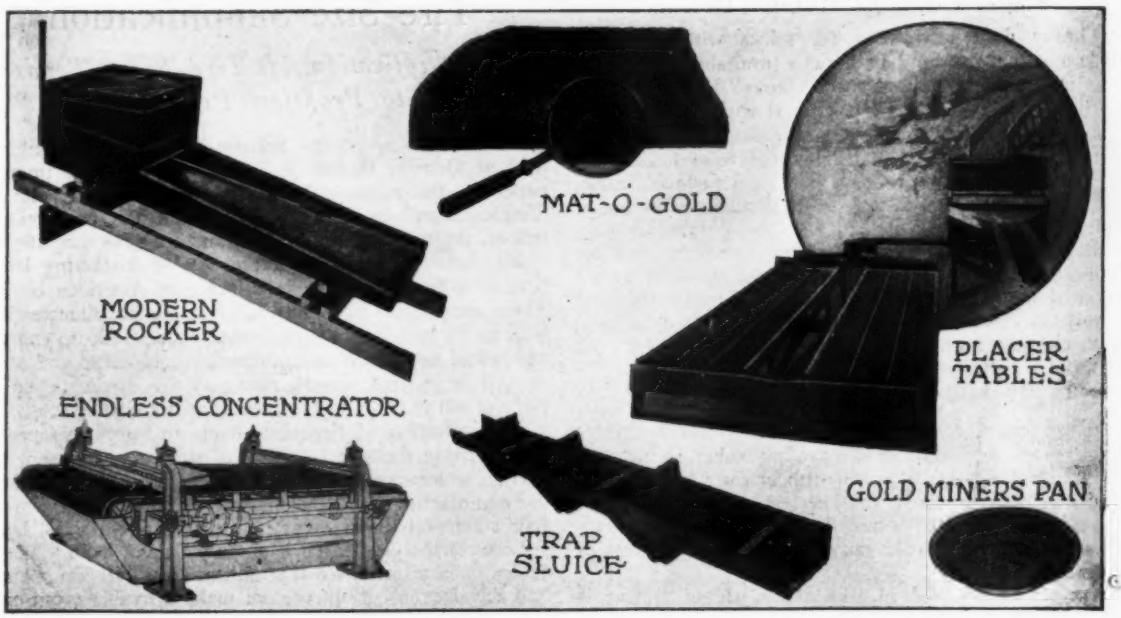
Taking the registration total and dividing it into the estimated population of the United States shows one car for every 4.9 persons, or approximately one car per family. The 1927 registration total also provides 7.9 motor cars for every square mile of area in the United States.

An estimated registration of motor vehicles on farms shows 19.9 per cent of the total or 4,700,000 motor cars and trucks. Over 19 per cent of the total highway mileage in the United States has been surfaced for motor vehicle traffic, a big gain in surfacing having been made during 1927. Gasoline consumed by motor vehicles in 1927 amounted to 9,697,000,000 gallons. Eighty-four per cent of the rubber imported was used in making tires and accessories for the motor car industry.

State registrations for 1926 and 1927 are given below, together with the rank of each state and its percentage of gain over 1926.

State	1926 Rank	1926	1927	Per Cent Increase
Alabama	31	225,651	243,539	7.9
Arizona	44	74,400	78,120*	4.9
Arkansas	33	209,419	207,348	—1.0
California	2	1,614,479	1,703,685	5.5
Colorado	27	252,787	269,353	6.5
Connecticut	23	280,000	300,000	7.2
Delaware	48	45,100	47,355	5.0
Dist. of Columbia	38	110,000*	129,245	17.5
Florida	19	446,930	400,294	—10.4
Georgia	22	277,910	301,401	8.5
Idaho	41	95,500	100,227	4.9
Illinois	5	1,370,351	1,444,835	5.4
Indiana	9	774,425	817,749	5.6
Iowa	11	699,800	705,922	.9
Kansas	16	491,223	503,076	2.4
Kentucky	26	277,111	282,359	1.9
Louisiana	28	239,500	255,510	6.7
Maine	36	172,020	162,073	—5.8
Maryland	25	264,018	287,429	8.8
Massachusetts	8	826,224	923,312	11.7
Michigan	6	1,122,828	1,140,455	1.6
Minnesota	14	627,256	653,439	4.2
Mississippi	32	210,500	239,749	13.9
Missouri	13	640,141	680,591	6.3
Montana	40	104,984	112,330	6.9
Nebraska	20	363,024	368,729	1.6
Nevada	49	23,999	25,873	7.8
New Hampshire	42	88,976	97,387	9.5
New Jersey	10	652,459	718,413	10.1
New Mexico	46	54,610	58,960	8.0
New York	1	1,798,091	1,974,722	9.8
North Carolina	17	391,000	428,181	9.5
North Dakota	37	158,000	160,928	1.9
Ohio	4	1,510,000	1,592,722	5.5
Oklahoma	15	490,000	510,000	4.1
Oregon	30	234,119	247,592	5.8
Pennsylvania	3	1,482,837	1,598,030	7.8
Rhode Island	39	110,734	120,012	8.3
South Carolina	34	181,105	199,399	10.1
South Dakota	35	168,120	169,766	.9
Tennessee	24	276,097	289,902*	4.9
Texas	7	1,046,415	1,113,528	6.4
Utah	43	91,380	94,469	3.4
Vermont	45	74,071	73,285	—1.1
Virginia	21	321,879	336,384	4.5
Washington	18	363,279	403,000	10.9
West Virginia	29	227,678	250,421	10.0
Wisconsin	12	663,335	705,297	6.3
Wyoming	47	49,878	52,606	5.5
	...	22,273,643	23,579,002	5.9

*Estimated for year.



Sponge Rubber in Mining[1]

Cellular Mats Supplant Old-Time Sluice Traps for More Effectively Catching Gold from Crushed Ore or Gravel Flushed Over Runway Surfaces

WITH modern sponge rubber mat equipment, it is claimed, almost any gold-bearing deposits, whether hard rock or placer, can be profitably developed even though remote from a smelter or though the ore assays scarcely $5 a ton. Gold mining, it is pointed out, is not so much a question of high percentage of precious metal in a mineral dug from a mine vein or in sand dredged from a river bed or washed from a hillside, as in placer operations, as of cheap and efficient concentration on the ground. With the new rubber outfit, it is said, many a low grade ore can be made to yield a high grade product that will repay shipping to a smelter.

In the days of the "forty-niners" and even much later, the prospector washed his pounded ore in a hand pan, and often in this primitive process lost nearly as much gold as he recovered. Now he can use a pan lined with sponge rubber matting and, by shaking down the ore pulp or sand in water until the heavier and more valuable contents have gone into the rubber pores, and then pitching out the crude material and inverting the pan in a plain one full of water, recover a much larger proportion of valuable concentrate than could be obtained by the most careful old-time panning.

Improving on Old Rocker

"Rocking the cradle" was the next advance in recovering precious metals from crushed ores. The cradle was an inclined wooden box mounted on rockers and was swung to and fro in washing gold-bearing earth, and in the bottom were many ridges, cleats, or depressions for intercepting the heavy, valuable dust or nuggets. With such crude equipment but little of the fine gold sediment was saved. However, when equipped with a bottom surfacing of sponge rubber that will recover practically all the free gold, this time-honored device, now built of steel and which was becoming obsolete, has got a new lease of life.

For small mines a non-packing trap sluice outfit, about 15 feet long, is provided. It has three traps and the bottom of the flume is covered with cellular rubber cemented to a canvas base. Three adjustable baffle plates project into the traps and help to settle the moving values into the sponge rubber where they are securely held. Smooth, pliable rubber flaps over the traps also help through intermittent suction to recover the fine particles by forcing them downward into the tiny recesses in the surface of the sponge rubber bottom.

A Non-Mechanical Concentrator

This rubber-equipped contrivance is said to be unique inasmuch as it automatically concentrates without mechanical power or expensive labor. It is stated that it will recover filmed, rusty gold and platinum that will not amalgamate with mercury. No quicksilver, acids, oils or other chemicals are needed, and it does the work in many cases of copper plates, cyanide, and flotation.

The gold concentrate is washed from the sponge rubber matting with a flattened spray nozzle and through the clean-up hole at the bottom into the launder or concentrate bin. Where water under pressure is unavailable, effective precipitation may be obtained by inverting and thoroughly rinsing the rubber mats in a trough.

[1] Data and illustrations from Frank S. Morgan Co., 2927 Newbury St., Berkeley, Calif.

Endless Sponge Rubber Belt

For heavy duty service, as for mines with low-grade sulphide ores that can not be otherwise profitably worked, an endless belt concentrator outfit is provided. Its unique feature is the belt, a strong fabric band with a spongy cellular surface for catching and retaining the fine values. It is made in from 6 to 24-foot lengths and from 1 to 6 feet wide. The belt is run on a heavy, flat level surfaced frame, and under running water cleans itself, at each revolution, of the valuable concentrates.

In many stamp mills the crushed ore is now flushed out on to inclined sponge rubber mats, instead of on to copper plates or metallic concentrating tables, the refuse material being quickly carried off the surface and the valuable metal particles sinking into the cellular rubber.

Hydraulic Operations Improved

In placer or other hydraulic operations where surface sand or gravel containing gold or other valuable metal is washed, the introduction of sponge rubber for a lining in the undercurrent or long, tilted, shallow box or table set beside the main sluice, is said to have greatly increased recovery values and to have provided the most economical means of concentration.

The principle involved in this newer use of rubber is simple. In all washing operations the crushed ore mixed with water must be vanned or constantly agitated as it is passed over tiny traps or riffles in an inclined runway. Canvas, cocoanut mat, burlap, corduroy, and other materials have all been tried but found to have faults. Frank S. Morgan, miner, chemist, and metallurgist, finally developed a resilient material with the maximum of advantages—a sponge rubber with cavities varying in width and depth from a pinhead to ⅛-inch; and it was found that while the water and ore pulp were passing over the surface the riffling action was multiplied a hundred-fold and that the agitated little rubber pockets picked from the mass a concentrate far richer than that yielded by any means hitherto used.

NATIONAL ASSOCIATION OF PURCHASING AGENTS

The Thirteenth International Convention and Inform-A-Show of the National Association of Purchasing Agents will be held in Kansas City, Mo., May 28-31, inclusive, in the American Royal Bldg. It is expected that approximately 1,200 purchasers will attend. These members of the N. A. P. A. will come from all parts of the United States and Canada and some from Mexico. The association has a membership of approximately 5,000 compared with the original 13 with which it started 14 years ago. Its members are ever on the alert for new and improved methods of purchasing, or new products which will help them to buy more efficiently. The office of the association is at 11 Park Pl., New York, N. Y.

CONTROLLING A TIRE ENEMY

The spread of the puncture vine, which has flattened so many tires on country roads in the Southwest, is now being well controlled by spraying this alien weed pest with a diluted solution of arsenic trichloride before the seeds mature, according to the California Department of Agriculture.

FAMOUS HOTELS RUBBER-FLOORFD

Claridge's and the Cambord in Paris, Savoy in London, Grand Hotel Metropole in Brussels, Regina in Interlaken, Continental in Stockholm, Savoy in Christiania, and the Grand at Koenigsberg are among the famous European hotels that have been equipped with rubber tiling and flooring.

Tire Size Simplification

Multiplication of Tire Sizes Tends to Profitless Prosperity

At the meeting of the Society of Automotive Engineers held at Detroit, Burton J. Lemon presented an important paper on the subject "Tire Production Progress and Size Simplification" in which he discussed the production of rubber, the manufacture of tires and tire-size simplification.

Mr. Lemon characterized the cost of marketing balloon tires as a disgrace to the intelligence of American business. There are balloon tires that differ in section diameter by as little as ¼ inch, and the unnecessary sizes lock up enormous amount of capital in manufacturing equipment and stocks, as well as in tires, wheels, rims and tire carriers. To simplify or not to simplify is the leading tire question.

Multiplication of tire sizes tends to "profitless prosperity." During the war 100 sizes of tires were in use. A reduction to nine standard sizes helped the prosperity of both the manufacturer and the dealer. At first there were only four sizes of balloon tires; now there are 40 sizes, but 80 per cent of the production is on only four of them. The tire dealer is bewildered by the multiplicity. He cannot stock half the sizes in current use nor make a livable profit on his large investment. He cannot even fill his orders without consulting a tire dictionary.

A simplified list of sizes has been adopted tentatively after conference between the division heads of the Rubber Association of America, the National Automobile Chamber of Commerce and the Tire and Rim Division of the S.A.E. Standards Committee. Secretary Hoover has planned a campaign to help secure its effective adoption. The time is ripe, said Mr. Lemon, for reduction in the cost of motoring by such a simplification.

Following the presentation of Mr. Lemon's paper, written discussion by H. M. Crane, chairman of the Tire & Rim Division of the Standards Committee, was read. After referring to the tire-size standardization during the war, Mr. Crane asserted in his statement that, up to the present time, low pressure tires had not reached the period of engineering development when they could be standardized. The recent demand for smaller wheels, for the sake of appearance, has further complicated the question. However, no further gain in appearance can be had by further reduction of wheel size with retention of the standard tread.

Any attempt to standardize tires themselves at present is thought by Mr. Crane to be useless. For one thing, tires of different load capacities are demanded for the same size of rim, and some cars use five-ply tires for the front and six-ply tires for the rear wheels. Another difficulty is that when the weight of a certain model of car is increased it is cheaper to change the rim to accommodate the tire of larger section than to change the body and fenders. It has been found that the same tire can carry a greater load when mounted on a wider rim. Economic pressure forces manufacturers to take advantage of this and it is a question whether the loss in distributing cost counterbalances the gain.

Proposed new standards for passenger car rim sizes have been decided upon and it is expected that they will be presented to the Society by the Standards Committee for approval at the coming annual meeting.

Standardization never is successful except as it is the result of experience. Mr. Crane believes sufficient experience has now accumulated to attempt the elimination of unnecessary sizes. The tire user is not yet interested in the question and it will be several years before any simplification, no matter how successful, will show much result in the field, but the sooner it is begun the sooner some advantage can be reaped.

Variation of Color in Carbon Black

The variation in blackness from the standard of production in any one plant gives differences in the reinforcing properties that are added to vulcanized rubber by the use of carbon black

C. R. JOHNSON

TECHNICAL DIRECTOR, GODFREY L. CABOT, INC.

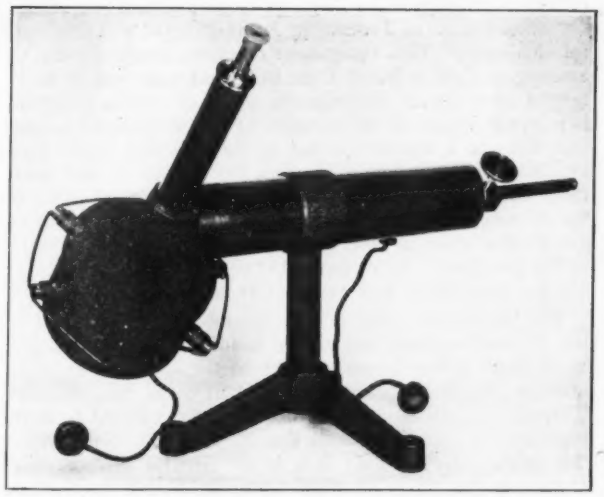
FOR a long time manufacturers of carbon black have known that it varies in blackness, depending on a number of factors in manufacture. Blackness in this discussion is synonymous with light reflecting power. Carbon blacks consumed in the rubber trade are not nearly as black as those especially prepared for use in the ink and varnish trade.

There is nothing in literature which adds materially to our knowledge concerning the influence of blackness, or light reflecting power of carbon black, on the behavior of carbon black in rubber. Nevertheless, some investigators have had the notion that the color of black had some influence on its properties in rubber. In an investigation to determine to what extent color variation influenced the properties imparted by carbon black when used with rubber, a large number of samples were studied from all of the gas fields in which carbon black is manufactured. As a general rule all comparisons were made by using a simple formula which emphasizes variation in carbon black when it is of such a nature as to affect its performance in rubber. This formula was made up as follows:

Smoked sheets	93.00
Carbon black	35.00
Zinc oxide	3.00
Sulphur	5.00
Diphenylguanidine	.75
	136.75

While the above formula does not give a tread stock, it is useful for this particular purpose. So far as possible the work was carried on in a manner consistent with the recommendations of the Rubber Testing Committee of the American Chemical Society, with the exception that no temperature conditioning apparatus was used, nor any attempt made to control room temperature while taking stress-strain data.

Analysis of the usual physical measurements taken during rubber testing indicated: first, that carbon blacks from a number of factories though different in color, could be interchanged in rubber formulas without yielding differences beyond the limits of experimental error in testing; second, that carbon blacks from all factories at one time or other varied in color from the standard of that factory and also varied in the effects produced when compounded with rubber. The variations consisted of lower tensile, lower modulus, and often excessively retarded cure. Concretely, where a good black would average 4,300 pounds per square inch tensile in the above formula, the off quality black would show tensiles as low as 3,500 pounds per square inch. The good black would also show a flat time tensile curve, while the poor black gave a decided peak cure and often the peak came at 80 minutes instead of 60 minutes for the optimum of the good black. Curves of good and bad blacks are shown in the accompanying Graphs 1 and 2.



Nigrometer for Testing Color of Carbon Black

Paralleling the investigation in rubber, a study was made of the variation in other properties, physical and chemical. Among other things it was noted that whenever off quality black was encountered it was blacker than the standard good sample from the same source. The method of examining this property consisted in rubbing a small quantity of the black with raw linseed oil until the consistency of a soft paste was secured. For comparative purposes oil mixtures from two samples were drawn with a spatula on a microscopic slide so that the two mixtures formed a junction in a line. By looking at this slide in the right kind of daylight, differences could be observed, provided that the differences were not too slight and that the light which fell upon the slide was correctly chosen. As a rule, differences great enough to materially affect the properties of the black when used with rubber were usually visible by this method.

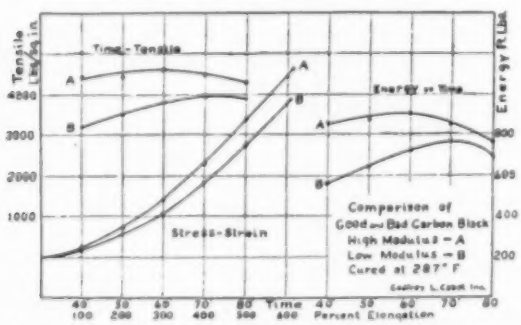
It seems fair to assume that some manufacturers have erroneously concluded that their carbon black was uniform when delivered to the rubber trade. Two possibilities of correction suggest themselves. One would be to find the causes of variation in the production of the carbon black and attempt to control them. The other would be to find some means of identifying the off-quality black when it is produced and arrange to cull this material from production so that only good quality carbon black for rubber purposes might be delivered to rubber manufacturers. The latter course appears to give more promise for immediate solution of the problem. For control purposes a rubber laboratory for each plant would be impractical, both from the standpoint of time consumed and the expense of personnel and investment. Carbon black plants are located in too many small and scattered units to make this method feasible. Furthermore, a central laboratory with the additional delay in the transmission of samples and reports would be equally unsatisfactory.

It was decided, therefore, to use the color difference test as a means of culling undesirable black from production. It was found, however, that when rubbed-in-oil samples were used as the means, that human judgment was too variable, depending on lighting conditions and physiological reasons. Effort was then made to eliminate the human factor from the test and after some study and consultation with Professor

Arthur C. Hardy of the Physical Department of the Massachusetts Institute of Technology, an instrument was developed for this work. This instrument measures comparatively the amount of light reflected from black surfaces and is so arranged as to almost eliminate the errors of human judgment. It is an adaptation of the principle of the intensimeter as used in optics and it has been called by the more descriptive name of "Nigrometer." The instrument has a much greater sensitivity than the eye when examining two samples of black on the microscopic slide and it can be used with blacks which are so near alike in color as to be entirely indistinguishable by the eye alone. Referring to the sectional diagram, the following description will make clear its operating principle.

The instrument consists of a chamber *A* illuminated by six 21 candle-power automobile headlight lamps so placed as to direct a very powerful light on the specimen to be examined, which is placed at the bottom of the chamber. Through a small elliptical orifice the light reflected from the specimen is visible through the eyepiece *B*. Surrounding this small elliptical field is a larger circular surface which represents the image of light transmitted from a standard source *C*, through two opalescent glasses *D* and *E*, one fixed and the other movable. The thumb screw *F* operates a pinion on a rack which moves the standard light longitudinally toward or away from the fixed opalescent glass. In that manner the intensity of the field surrounding the elliptical view of the sample is varied. The eyepiece is provided with a color screen which assists in determining when the two fields are matched in intensity. A scale is provided on the member carrying the rack *G* so that readings in fractions of a millimeter can be obtained if desired. One feature which eliminates the effect of variation of voltage in the electric circuit is the use of a series circuit in the lamps. In order to increase the utility of the instrument, a means of changing the distance of the standard lamp from the movable opalescent glass is provided. It permits the adaptation of the instrument to a wide range of blacks. To insure against variation in the light giving power of the bulbs a standard black tile is provided with the instrument which permits it to be frequently calibrated.

This test and instrument are useful in distinguishing good and bad carbon black from the point of view of the user in rubber. Our laboratory has found a few instances of failure of the test to reveal the true condition. The causes of this

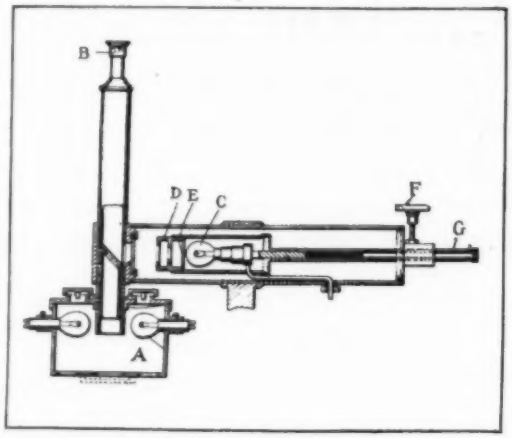


Characteristic Curves of Good and Bad Carbon Black

failure are being studied but no explanation is available at this time. Fortunately, two other tests, one chemical and one physical, have been developed which seem to be so directly connected to the effects produced by carbon black in rubber, that no failures of these tests have been observed. It is planned to use the color test as the more extensive method of culling with frequent checks by the other tests. The advantage of the color test is that it is practically instantaneous in its operation.

The testing device has immediate application in the hands of ink and varnish manufacturers who desire to compare black colors. It has a definite application in carbon black factories for culling bad production and for notifying the management of the occurrence of bad black in the process. This latter use should be helpful in the correction of undesirable conditions.

In the hands of rubber manufacturers, and after the black has been put in bags the utility of this device is doubtful for



Sectional Diagram of Nigrometer

two reasons: first, the process of manufacture is such that by the time a car is prepared for shipment it may contain a lot of black, good in its entirety, or a lot of black bad in its entirety, or a car composed of a mixture of bags of these two kinds. Obviously, only an examination of each bag in the shipment could separate the good from the bad, but this would be too costly to consider; second, inasmuch as the test is a comparative one, it would be necessary for the rubber manufacturer to have a normal sample of good black from each source and to know the exact source of the unknown sample. Furthermore, carbon black factories are often made up of several units with separate packing houses so that it would be necessary to have the proper standard from each unit and knowledge of the unit source before safe conclusions could be drawn as to quality.

Other findings of this investigation relating to physical and chemical properties of carbon black are of interest and use and will be the subject of future papers from this laboratory.

TRIPLE REACTION IN VULCANIZATION

Instead of the vulcanization of solid rubber with sulphur through heat being a single or double it is really a triple response to the thermic stimulus, the three phenomena occurring simultaneously, according to F. Boiry in *Le Caoutchouc et la Gutta Percha*. These changes are: (1) chemical combination of sulphur and rubber with formation of addition compounds; (2) polymerization or aggregation of these addition compounds; and (3) depolymerization of the rubber through external influences. Essentially, vulcanization is the result of 1 and 2, while 3 is accidental. The latter is much less pronounced where vulcanization is effected with an ultra-accelerator, and to the latter's action in largely inhibiting phenomenon 3 may be attributed the superior physical properties of rubber cured with such accelerator. To polymerization or increase in molecular weight are ascribed the insolubility, rigidity, and increased elasticity of vulcanized rubber. The author is convinced that rubber is a 2-phase system in which the ultimate particle is a liquid encased in an elastic solid, the former having a simple grouping of hydrocarbon elements and the latter one much more elaborate.

Improved Hose Wrapping System

New and Efficient Machines Demonstrate Possibility of Exceptional Savings in the Manufacture of Rubber Covered Hose

THE manufacture of ordinary plied rubber hose as ordinarily conducted comprises the formation of a rubber lining or tube by extrusion of rubber composition from a tubing machine. The tube is next slipped over a pole or mandrel of somewhat longer length than the finished hose is to be. Around the poled tube several plies of bias cut friction fabric are wound in a three-roll hose making machine. The construction is then finished by wrapping a thin calendered sheet of rubber around the fabric plies.

Thus built up the hose requires to be consolidated by tightly wrapping it throughout its length with narrow fabric applied wet. This work is ordinarily performed in a 50 foot three-roll machine resembling the hose making machine, the tension of the wrapper as it is spiraled on the hose being hand regulated by the operator who holds the spooled wrapper and exerts tension upon it as it passes up over the edge of the tension board extending the length of the machine in front of the hose.

THIS informing article on hose making is abstracted from a survey made by A. C. Nielsen Company, engineers, in collaboration with T. F. Carey, manager of the Hose Department of The Manhattan Rubber Manufacturing Co., Passaic, N. J.

The recent introduction of a machine method of wrapping and unwrapping plied hose here described results in producing better finished goods and a large reduction in the cost of its wrapping and unwrapping. A description of this new method follows.

The substitution of woven tape for the common torn-edge fabric strip allows omission of the straight length wrapper because the even tension of the machine causes the spiral lines on the finished hose to be evenly spaced and therefore unobjectionable. This even tension on the tape increases its life considerably. The old type of wrapping was good for about 20 heats whereas the woven tape is good for about 60 heats.

Unwrapping Methods

Hose from the vulcanizer is first dipped in water to swell the wrapper preparatory to unwrapping. The unwrapping machine, like the wrapping machine, is located between two 50-foot tables. A series of roller supports are located beside the two tables, each support having a pair of bronze rollers mounted on a swinging bracket, the position of which regulates the linear feed of the hose while being unwrapped. As the tape is unwound from the hose it passes through a series of pins which smooth and straighten it as it is wound by the machine on a spool ready for return to the wrapping machine. The tape is spooled in such manner that the wrapping strain is always on the same edge. This feature is very desirable as it lengthens the life of the tape considerably.

Rubber hose of usual fabric ply construction is carried from the hose making machine to 50-foot tables by means of overhead cranes. A Terkelsen wrapping machine is located between two of these tables, standing end to end, each equipped with ten ball-bearing rollers arranged so that the 50-foot length of hose can be drawn easily off of one table, wrapped by the machine, and slid on the other table.

Two men are required to handle the hose and operate the machine. While one places an unwrapped section of hose on the rollers preparatory to wrapping, the other, who actually operates the machine, mounts a new spool of tape in the machine. The hose is then wrapped as it is drawn through the machine by feed rollers. The machine feed can be set for two speeds so that for a given width of tape the amount of lap can be varied. Most hose is wrapped at the higher speed which gives a 50 per cent lap with the proper width of tape. On hose which has a particularly thick wall it is desirable to use the slow speed in order to get a specially tight wrap with about 30 per cent lap.

Woven herring-bone wrapping tape is used. Such a strip is free from loose threads and withstands the tension required. Various sizes of hose can be handled, the majority ranges from 1 to 2½ inches and both 2¼ and 3-inch tape is used.

The common method of hand wrapping necessitated the use of a straight length jacket under the torn edge spiral wrapping to prevent loose threads from adhering to the hose during vulcanization. It also caused spiral lines due to uneven tension exerted by the operator in feeding the wrapper.

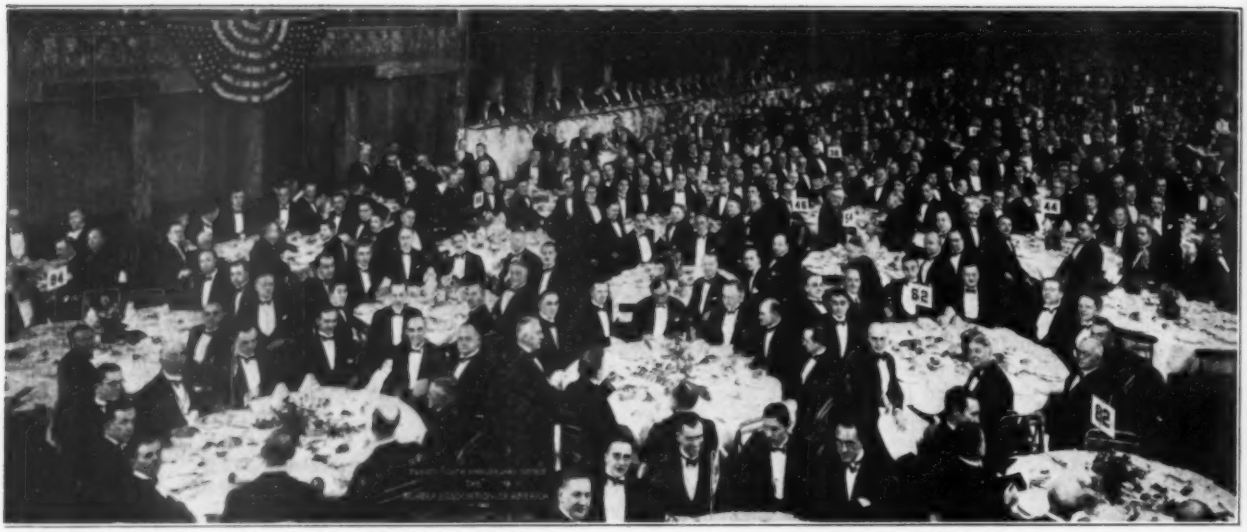
By the former method of wrapping, the hose was revolved on belt-driven long rollers and the tape was applied by hand from a spooled roll. Two men were required and an average hourly production of seven 50 foot hose was obtained on mixed sizes. It should be remembered that only a very small amount of the hose wrapped is under the 1 inch size, about 75 per cent of the production is from 1 to 1½ inches and 25 per cent from 1½ to 2½ inches. On small sizes such as garden hose both hand and machine wrapping are much faster than for larger sizes.

Unwrapping by the old method was done on a long roll machine resembling the making machine. The operator pulled the wrapping strip off as the hose was revolved, allowing the strip to pile up on the floor beside the machine. It was spooled by boys on special spooling machines, three of which were required to serve one unwrapping operator.

Comparison of the new and old method is given below:

Costs for average run of hose sizes	Terkelsen Method	Hand Method
Wrapping cost per 50-ft. hose	$.058	$.163
Tape	.040	.086
Unwrapping	.060	.108
Totals for 50-ft. hose	$.158	$.357
Savings by Machine Per hose		$.199

(*Continued on page 72*)



Drucker-Baltes, New York.

The Annual Dinner of

THE Twenty-Eighth Annual Dinner of the Rubber Association of America, Inc., was held in the Grand Ballroom of the Hotel Commodore, New York, N. Y., on Monday evening, January 9, 1928. There were eight hundred fifty members and guests present.

The program that followed the dinner was admirably selected and comprised a fine address, a humorous speech and delightful singing. The entertainers were: Colonel William J. Donovan, assistant to the Attorney General of the United States; James Schermerhorn, formerly publisher of the *Detroit Times;* and Reinald Werrenrath, baritone.

After the dinner had been served President Weston, acting as toastmaster, called for order and said, in part:

These gatherings and our association contacts throughout the year, for the purpose of discussing our mutual problems in an endeavor to be of the greatest possible service to our industry and the public, enable us to come to know the real character of our competitors, only, I think, to find that there is really a very splendid and sympathetic spirit existing which is a fundamental necessity towards cooperative and constructive work for the benefit of all concerned. Therefore, these occasions are of real moment.

The association has received a letter from one of its former presidents, Henry C. Pearson, who officiated when this organization was maintained for social intercourse, and at which time it was known as the Rubber Club of America, Inc.

The letter accompanied a hard rubber gavel that was made for use of the pioneer presidents of the New England rubber club, and which is now presented to the Rubber Association for the use of its future presidents.

Following our annual meeting today, your Board of Directors has selected a president for the ensuing year, Paul W. Litchfield, a man whom we all look to with great respect, and who has contributed to this industry in a very important way. His progress has been steady and sure and he now is the chief officer of one of the greatest rubber manufacturing companies of the world. He, I am sure, would like to say a few words to you in acknowledgment of the honor which you have shown him.

PAUL W. LITCHFIELD: After having spent the last quarter of a century in the rubber industry and having had business associations with so many who are here in this room, it is needless to say that I am keenly appreciative of the honor in electing me the president of your association during the coming year. I can only say that I shall do my best to uphold the record made by my predecessors and I ask the cooperation of all of you to make the year 1928, with not too ideal a staff, a year of outstanding cooperation and prosperity in the rubber industry.

TOASTMASTER WESTON: We have with us a very important member of our industry, a former president of this organization, serving in that capacity in the years 1916 to 1918. During his regime as the chief executive officer of the organization, the name was changed from the Rubber Club of America to the Rubber Association of America, and it was at that time reorganized for the purpose of functioning as a business organization. This was accomplished in time and on a sufficiently efficient basis to prove of great importance during the war period in the effort on the part of the industry to be of the greatest possible service to our Government at that critical period. I am going to ask this gentleman to address you tonight. He needs no introduction as he is well known to you.

HARVEY S. FIRESTONE: It is indeed a great pleasure to attend your annual dinner. It brings back to me some very pleasant recollections of the early days of the Rubber Club and the Rubber Association, fifteen or twenty years ago. Today we have an entirely different organization. Many of you may remember the Rubber Club. I attended one of the dinners and having been invited to join, I did so. Then they elected me a director, then vice president and finally president of the club.

Then the trouble started because my desire for business led the Rubber Club from social to business activities. I felt that the rubber industry had reached a point where it needed a business association.

When presiding at one of our first meetings I made the statement that rubber was the most important commodity in the world for our welfare and for our commerce. We consume in this country over seventy per cent of the world's supply, and yet we own and control a very minimum amount. Now, what shall we do? I think it is a commercial crime for America not to get an independent source of supply for rubber and use every effort along that line to protect our future commerce and transportation.

Today we are in the hands of a foreign monopoly that tells us how much rubber we can have and what price we pay for it. We need cooperation, and to stand together as an industry and be proud of our industry. The cooperation I refer to is simply the cooperation of our Rubber Agency. What has that done for our industry? I attribute to that the fact that we have had a more stable price of rubber in 1927 than we have had for twenty years. Now that is a big item, and I will give you just the figures of 1927, 1926, and 1925, and the fluctuations.

In January, 1927, the price was thirty-eight, and December 31 it was forty-one. The high during that year was forty-two and the low thirty-three, a fluctuation of nine cents during the year.

In 1926, January 1, the price was ninety cents, December 31 it was thirty-eight cents. The high during the year was ninety and the low fifty-five, a fluctuation of thirty-five cents a pound.

the Rubber Association

In 1925, January 1, the price was thirty-four, December 31 it was ninety cents, a high during the year of one dollar and twenty cents and a low of thirty-four cents, a fluctuation of eighty-six cents a pound.

Now, we have all the difficulties that the other manufacturers have, and we have beside this wide fluctuation in the price of our raw material. Therefore, it must be obvious to you that we must cooperate and stand together to get a more stable price in the rubber industry.

TOASTMASTER WESTON: Our next speaker is one of the outstanding figures in the present government. We are particularly fortunate in having him as our guest, as he is most representative of the young, virile, and progressive American in the law and in business. He has risen high and is now a trusted and efficient officer of our government in the capacity of the Assistant to the Attorney General of the United States. I have the honor and pleasure to present to you Colonel William J. Donovan.

Colonel Donovan's Address

Meetings such as this are valuable. It is a good thing that representatives of business and representatives of the Government should be brought face to face. I think it is a healthy thing for the country that both should be made to see that they are dealing mutually with human beings.

Hostility between the government and business often results from the fact that both fail to realize that they are but agencies of the community, and that agency means that there is a duty imposed on each side.

It is important for business to remember that there are certain rules to which it must conform. I think you all recognize that there is a minority in business who think that it is a matter of business virtue to get away with something so far as the government is concerned, and I think when you consider the interest of your country, you will realize that it is incumbent upon the government officers to see that any violation of the law is immediately punished.

There is, however, I believe, a great majority of business men who desire to conform to the law. However, they may experience uneasiness because of the uncertainty in their interpretation of the statutes and in the way those laws are administered by the particular administration that may be in power.

On the other hand, it is important that officers of the government should remember their duty. Government officials in dealing with business cannot dwell in a legalistic laboratory. Besides keeping in mind legalistic theory, it is important that they have in mind economic theory, and, more important than that, it is essential that they be able to recognize an economic fact when they meet it.

To my mind it is just as important to have an intelligent enforcement of the law as an honest enforcement of the law, and you cannot have an intelligent enforcement of business law unless you try to understand the practical problems with which business is confronted.

So to my mind there is a reciprocal obligation resting upon the man of business and upon the government officer, and it will be a great thing for our country when that reciprocal obligation is translated into mutual confidence in the moral and intellectual integrity of each other.

I think it a healthy thing if an honest business man with his industrial plan can come to the government upon whose fairness he relies and present that plan. I think it is a healthier thing if the government itself is prepared with courage and with honesty to take a look at that plan and give the business man the information as a citizen to which he is entitled to let him know whether or not the enactment of that plan would amount to a violation of the law, because I believe that the foundamental purpose of the Anti-Trust Law was to prevent abuses and to stop a plan before it had been consummated into a violation of the law.

Now there are those today, some who advocate a modification of our Anti-Trust Law. Too often those who advocate that modification have no appreciation of what the modification should be, no understanding of the manner in which it should be brought about and no recognition of the consequences which would flow. Men of affairs and economists tell us that we are right in the midst of an economic transition. If that be true, then it is the worst time in which to have legislation, because if you have legislation before you know where your tendency is going to take you, trouble is bound to result.

Some time ago President Coolidge pointed out that our prosperity is not due to regulation, that it has been based upon the principle that human welfare can best be preserved by insisting upon personal initiative rather than by resorting to governmental regulation and participation.

Now the Sherman Law has been based upon that idea. It represents the enactment of a statute to preserve the constitutional freedom of trade. If you modified it, it would mean greater restriction upon trade, because if it were permitted men to enter into agreements to fix prices, to allocate territory, to allot customers and to build up monopolies and monopolistic power, its inevitable corollary would be that there would be further governmental participation because people remember that in the history of monopolies they have always suffered, and if the end of free competition has come, the end of private enterprise has come,

because no people would permit any power to control the price of necessaries of life without governmental control.

And so we have based our civilization upon the theory of competition, but we are a practical people and we have also asked ourselves—will it work? We have recognized that there are certain limitations in the competitive principle. We have shown those limitations in the enactment of law relating to public utilities and to farmers' cooperatives, and in that legislation, however, it has always been on the principle that it has ceased to be a private industry and is now affected with a public interest.

Congress itself, in the enactment of Section Five of the Federal Trade Commission Act, has made evident that it considered that there was a certain element of competition in the use of unfair practices, an evil thing for industry. And certainly there can be nothing more destructive than ignorant competition. All industries have felt its effect and your industry has not been and perhaps is not free from it. With the over-productive capacity that you developed in the boom of 1919, which was followed and perhaps accentuated by reason of the fact, as Mr. Firestone has pointed out that you are, in your raw material artificially controlled by a foreign monopoly, you have developed certain practices that are not conducive to the health of an industry. When an industry fails to make money in a period of normal times, it is an indication or index that there is something wrong with it. Now that may come from several causes. As I sit at my desk and these various industries come in and present their problems, I find that the fundamental difficulty with so many of them is that they don't know what it costs to turn out their product. Or if they do know, are blinded by vicious competition and deliberately ignore that they are selling goods below what may mean for them a real profit.

Of course you and I know that in our development of products we have failed to devote the same time and the same thought to the problem of distribution, and in every industry you will find economic waste and extravagance which in the long run has its effect upon the consumer. And the thing that I know is that an industry in such a stage so easily develops those unfair and vicious practices that are condemned by the law, because when a man is in desperate straits he is apt to do an illegal thing. Then it is that he seeks to ameliorate the condition which has been caused by his own stupidity and he flies to trade agreements that will fix prices or allocate territory, when if he only knew and would only profit by the experience of industries in this country, that the surest way to bring about destruction of an industry is by such an agreement.

There should be stability in industry, but it cannot come by short-cut methods. It can only come by the application of economic and scientific principles. Now there is recognition of that fact by decisions of the courts, and an association such as yours is a mechanism to put those principles into effect. Such an association is recognized as a leader. Your course of conduct has been laid down by certain decisions of the Supreme Court. Justice Story, in his opinion in the Maple Flooring Case, said that the Sherman Law was not intended as a penalty upon intelligence, and that men are not conspirators simply because they gather and disseminate legitimate information, that restraint only comes when that information is used by concerted effort to block the channels of trade. Now it is important, however, to keep in mind the modifying principles upon that decision, in the opinion by the same Justice in the Trenton Pottery Case, where he held that the fixing of prices is inherently illegal even though the prices themselves should be reasonable. Now there is a course chartered for business men in associations, if they choose to follow that course, and I have always felt that trade associations, properly conducted, can be the real answer to the evil that may come from over-consolidation. Because here, as I look at you tonight, it impressed me again that one of the great values of association is not alone the interchange of ideas, but the human contact and touch that you are bound to get by meeting one with another.

I think it is well that those charged with the enforcement of law, as well as those charged with the guidance of business, should keep in mind that the true object of government is not to interfere with legitimate business, but to see that business conform to the true rule of social justice. We have painfully felt our way through cooperation in industry both for the employer and the employee. We adhere to that principle of competition which believes in a fair wage for the man who contributes his labor, a fair salary for the man who manages the business and a fair rate of interest to the capital that is employed. It is upon that basis that we believe that economic freedom is attained.

The last speaker, Dr. James Schermerhorn, closed the program with an address that sparkled with wit and humor, thus ending most agreeably one of the most enjoyable dinners ever given by the Rubber Association of America.

Annual Meeting

The Thirteenth Annual Meeting of the Rubber Association of America was held in the West Ballroom of the Hotel Commodore, New York, N. Y., at 11:30 A.M., on January 9, 1928. President Weston called the meeting to order and the reports of the general manager, the treasurer, and the budget committee were formally adopted.

Election of Directors

The following directors were elected, five to fill expired terms, and one to fill a vacancy; E. H. Broadwell, vice president Fisk Rubber Co.; P. W. Litchfield, president, Goodyear Tire & Rubber Co.; H. L. McClaren, president, McClaren Rubber Co.; F. A. Seiberling, president, Seiberling Rubber Co.; J. C. Weston, president, Ajax Rubber Co., Inc. Harry Hough, president, The B. F. Goodrich Co., was elected a director for the unexpired term of W. O. Rutherford who resigned.

Election of Officers

The meeting then adjourned until after luncheon, meanwhile the Board of Directors convened and elected the following officers for 1928: P. W. Litchfield, president; F. W. Seiberling, first vice president; E. H. Broadwell, second vice president; Samuel Woolner, Jr., treasurer; A. L. Viles, secretary and general manager; George Flint and A. D. Kunze, assistant secretaries.

Executive Committee

The Executive Committee, which comprises the president, first and second vice presidents, the retired president and two directors, is as follows: P. W. Litchfield, F. W. Seiberling, E. H. Broadwell, J. C. Weston, C. B. Seger and Samuel Woolner, Jr.

The meeting was again called to order after luncheon by President Weston, who delivered the following address:

Address of President Weston

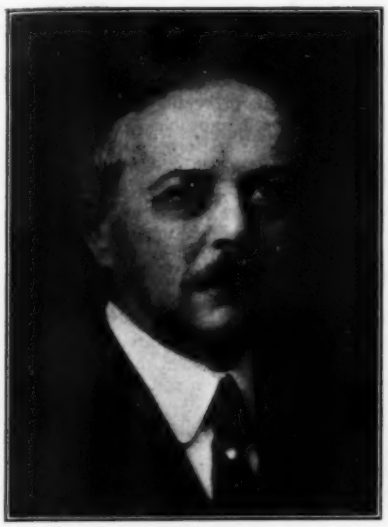
As my term of office expires at this meeting and your directors are about to elect my successor, it seems an appropriate time to give expression to some thoughts which have come to my mind, and which may prove of some service to the future of the association and its membership.

The Rubber Association is a well organized institution; the general manager and staff are working efficiently and I believe the membership as a whole recognizes the important work which is being carried on in each of the divisions, as well as the beneficial results derived therefrom.

One important accomplishment of the past year that might be mentioned in this category is the formation of a crude rubber Committee, composed of only consumer representatives of a number of our firm members; men who are exceptionally well qualified to perform a real service in many ways relating to this basic and fundamentally important subject.

Probably never before has the Federal Government maintained such broad and comprehensive contact with business as it is now doing through the commodity division organization of the department of commerce. The rubber division is particularly helpful in respect to trade information regarding crude rubber, and through our association we have a constant contact with the rubber division and all departments of commerce, thus enabling the industry to secure helpful information, and suggest many forms of government aid.

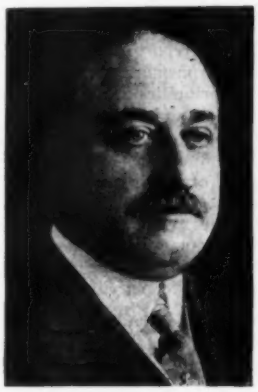
During the present year more than forty legislatures were in



F. A. Seiberling
First Vice President

Paul W. Litchfield
President

E. H. Broadwell
Second Vice President



Samuel Woolner, Jr.
Treasurer

Underwood Studios
C. B. Seger

Officers and Directors of The Rubber Association of America, Inc., 1928

J. C. Weston

A. L. Viles
Gen. Manager-Secretary

J. A. Lambert

Harry Hough

H. L. McClaren

G. E. Hall

W. O'Neil

E. B. Germain

W. F. Pfeiffer

A. B. Newhall

G. B. Dryden

session, and in cooperation with the National Automobile Chamber of Commerce, we maintained the Motor Vehicle Conference Committee and thereby had a direct connection with legislation in all states and in several instances we were able to prevent legislation that would have been unnecessary and burdensome to our industry.

Another situation which we hope will seldom occur and which only serves to indicate the need of keeping the cooperative machinery up to a high standard of efficiency, is the handling of the rubber flooring situation in the city of New York. The revival of an old ordinance in the city practically prohibited rubber floor covering in Manhattan, and other large cities were watching the progress of the matter, and we might assume that similar action would have been taken if New York had ultimately banned rubber flooring in Manhattan buildings.

Our infant flooring industry, through the association, joined with makers of other flooring materials and fought the battle through the courts, with the result that the Appellate Division of the Supreme Court decided in our favor, and the use of rubber flooring is now increasing rapidly.

This action was merely using the strength of the entire industry to protect the growth and progress of a comparatively new rubber product, probably at a cost that is not commensurate with the article at this time, but in principle the action of the association was well worth while.

While as stated the association is performing these and many other important matters for the benefit of its members, I feel that greater cooperation in the efforts of the manager and his staff should be given by the officers, the Board of Directors and individual officials of the companies composing the membership of the association. In other words, we have the machinery for dealing with and accomplishing greater things than we have been in the habit of treating with and exhausting same to a mutually beneficial conclusion.

The industry has I believe done a splendid job through research work in the matter of development of product to a constantly higher degree of efficiency in its various uses, at the same time lowering the cost of production through both improvements in the art of manufacturing, installation of labor saving devices, etc. But unfortunately during the period of this very constructive development there has been in progress the development of another bad very destructive nature, which has been in effect wasteful of at least a proportion of the savings referred to, and I believe a very important proportion, through extravagant merchandising and distributing methods, as the result of what might be termed nothing short of vicious competition to effect sales.

If any industry ever needed cooperative efforts along the lines of more economical practices in connection with merchandising and distribution of product, this industry does.

We have laws in our statutes for the prevention of extortion by profiteering through conspiracy between companies, and which all sound thinking people recognize as right and proper, and I am not so sure but that the time is almost here when we should talk to our Legislators about laws for the protection of the consumer against building up selling and distributing costs beyond reasonable requirements of the consumer or dealer and, therefore, unnecessary, resulting only in a competition for business that is entirely too costly and not of a nature to be classed as economic practice.

This is merely an idea, of course, and which is not likely to develop into an accomplishment, but is presented more for the purpose of bringing to our realization just what we are really doing, and the further fact that it is destructive, and with the hope that we may come to a realization of the situation and a determination to correct it.

The policy of our government departments in Washington today is one of thoughtfulness as regards business; the watchful eye for the prevention of an infraction of the laws is probably more vigilant than ever, while the cooperative spirit towards helping industry with all sorts of information to show what can and cannot be lawfully and legitimately done was never to my knowledge as prevalent as today.

Trade associations operating along right lines are encouraged as a means of cooperation for instituting and perfecting economic practices, for the benefit of industry and consumers of its products.

While as indicated in this report, and in the report of the general manager, which is now in the hands of each member present, this association is taking advantage of these opportunities in many ways, yet there are as stated more and greater opportunities for cooperative work to overcome some of the wasteful practices in vogue today.

We are fortunate in having as our guest of honor and principal speaker at our annual banquet, Colonel W. J. Donovan, assistant to the Attorney General of the United States, who, we hope, will bring to us a message pertaining to the advantages of cooperative methods through trade associations, and which we further hope may form a new basis for even more intensive activities in the work of this association.

Effect of Front-Wheel Alinement on Tire Wear

A paper of the above title by J. E. Hale and C. R. Stewart of the Firestone Tire & Rubber Co. was presented at the Los Angeles meeting of the Southern California Section of the Society of Automotive Engineers.

Two distinct types of shimmy exist. The first is a slow-speed shimmy or wabble, which is merely a turning of the front wheels from side to side at any vehicle speed up to perhaps 30 m.p.h. This type is relatively easy to rectify. The second type, called highspeed shimmy, is a violent lateral oscillation of the wheels and is accompanied by a violent tramping of the axle in a vertical plane around a longitudinal axis. It is a type of shimmy that has been noted at speeds of from 30 to 70 m.p.h.

Slow speed shimmy is caused by worn or bent parts, such as drag link and tie rod connections kingpin bearings, wheels, tie rods and axles. High speed shimmy results, not from one particular glaring error in vehicle or tire construction, but from myriad forces, most of them present in the modern car. Sometimes these forces work together and have a pyramiding effect, and sometimes they oppose and damp-out each other.

The major causes of high speed shimmy are: gyroscopic action, periodicities of vibrations, design and mechanical conditions of the front axle and the steering linkage, and the effect of the tires.

In conclusion, it was stated that the following precautions should be kept in mind as being helpful in increasing the life of tires and decreasing shimmy: (1) Check the camber, caster, and toe-in frequently and keep them within proper limits for the conditions of service. (2) Replace worn or bent parts in the front end of the car promptly. (3) Line up the drag link so that the connections of the drag link to the pitman arm, and from the drag link to the steering arm and the front spring bolt, form as nearly as possible a straight line. (4) Keep the balance of the wheel and tire assembly within reasonable limits, say within 50 oz-in. (5) Keep the tires inflated to the recommended pressure. (6) Retard the front spring deflection and change the period of vibration in some way. To do this (1) keep the shock absorbers tight, (2) do not oil the springs or (3) add an extra leaf.

(*Continued from page 67*)

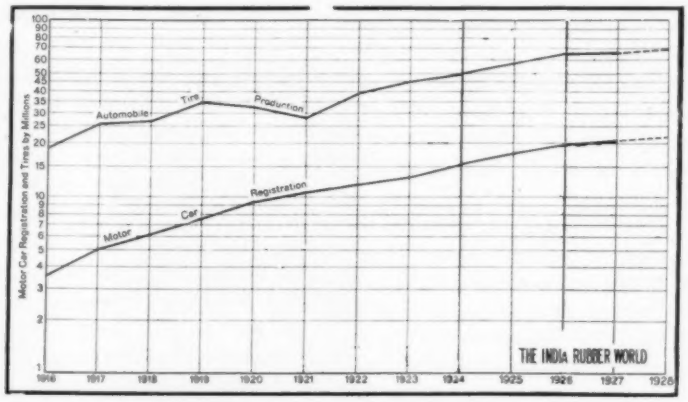
The saving of $0.199 per average 50 feet hose represents a cost reduction of over 55 per cent. The annual saving based on the average daily output is a net return of 134 per cent on the investment.

The use of the new machine method not only decreases manufacturing costs in the hose wrapping department but makes possible a superior product of better finish which is of considerable value in marketing the goods. No adjustments are necessary when changing from one size of hose to another and it is common practice to run mixed sizes. The effect of size change is simply to vary the percentage of lap which is partially compensated for by using tapes of two widths.

The National Automobile Show

THE Twenty-eighth Annual National Automobile Show was held under the auspices of the National Automobile Chamber of Commerce in Grand Central Palace, New York, N. Y., January 7 to 14, 1928. It was a marked success, exceeding in brilliancy any preceding automobile show. Cars were on display made by 65 different manufacturing companies. In the accessories section 156 manufacturers were represented and in the shop equipment section 56 manufacturers.

The various types of closed car have largely displaced the once popular touring car. Closed car production has advanced to 80 per cent. In all types refinement in design and mechanical details was the leading feature of every exhibit. The whole ensemble was one of utility combined with artistic effect. The six cylinder engine still seems to lead with the eight cylinder type gaining in favor for the heavier cars. There seems to be a general tendency to lower the center of gravity of all cars by mounting them on wheels of smaller diameter than formerly. This naturally follows from the public demand for cars with higher road speeds.



Automobile Registration and Tire Production—1916-1928

These developments are all in the interest of the car user yet car prices are moderate or declining. The increasing volume of automotive vehicle production is based on the fact that it meets the universal need for cheap and rapid transport for persons and goods. The sponsors of the show rate the automobile as 10 per cent for pleasure, and 90 per cent for utility, a total of 100 per cent for necessity.

The accompanying chart compares on a ratio basis graphs of motor car registration and tire production in the United States from 1916 to 1927 inclusive with the estimated production of each for 1928.

The exhibits in the accessories section were, as usual, great in variety and excellent in grade. A few only were strictly rubber products although rubber was incidental in a number of the articles or devices shown. Mention should be made of those of special rubber manufacturing interest.

AMERICAN HARD RUBBER CO. Included in exhibit of this company was a complete line of Ace-ite and hard rubber battery cases manufactured at its College Point, L. I., and Akron, O., plants. The Ace-ite container is a composition case having more than usual strength which has passed rigid laboratory and service tests. There was also on display hard rubber battery covers, vent plugs, separators, funnels, syringes and plate forming boxes. Among the other automotive accessories made of hard rubber are door handles, ball handles for gear shift levers, magneto parts, lamp and ignition insulation parts and other molded articles.

A. SCHRADER'S SON, INC. This company displayed its full line of air valves for tires, etc., tire gages and other accessories for the motorist. The construction and operation of the Schrader valve inside was shown in an enlarged model making clear its scientific construction according to proved principles of air control.

SHORE INSTRUMENT & MFG. CO. exhibited its line of scientific instruments for testing the hardness of metals and the hardness and elasticity of rubber. For the latter purpose two instruments of pocket size are provided which may also be detachably mounted on a common base. One is the Durometer, for hardness and the other the Elastometer for the elastic quality measurement.

THE GENERAL ELECTRIC CO. occupied a space in the shop equipment division where were displayed electric motors, and various accessory devices applicable to modern shop practice.

The distribution of tire sizes and makes with which this year's car will be equipped is shown in the above tables and for which we are indebted to *Tires*.

NEW TIRE SIZES

Size	Car	Tire
30x4.50	Chevrolet	Goodrich
29x5.00	Dodge, Durant, Graham-Paige	Fisk, U. S.
30x5.00	Chandler, Essex, Nash	Goodyear, Kelly-Spring, Miller
29x5.50	Durant, Falcon-Knight, Graham-Paige, Hupmobile, Marmon, Moon, Oakland	Ajax, Dunlop, Firestone, Fisk, Kelly-Springfield, Goodyear, Pennsylvania, Seiberling, U. S.
30x5.50	Studebaker	Firestone

TIRE SIZES AND CARS THAT USE THEM

Size	Cars	No. of Car Makes	No. of Models
28x4.75	Star, Whippet	2	6
28x5.25	Chrysler, Elcar, Jordan, Oldsmobile	4	14
29x4.75	Chrysler, Erskine, Pontiac	3	9
29x5.00	Dodge, Durant, Graham-Paige	3	11
29x5.25	Marmon, Moon, Peerless	3	4
29x5.50	Durant, Falcon-Knight Graham-Paige, Hupmobile, Marmon, Moon, Oakland, Willys-Knight	8	20
30x4.50	Chevrolet	1	5
30x5.00	Chandler, Essex, Nash	3	10
30x5.25	Nash, Velie	2	4
30x5.50	Studebaker	1	3
30x6.00	Auburn, Chrysler, Elcar, Jordan, Kissel	5	15
30x6.20	Auburn, Gardner, Reo	3	13
30x6.75	Auburn, Chrysler, Kissel	3	8
31x5.25	Buick	1	1
31x6.00	Dodge, Gardner, Hudson, Graham-Paige, Hupmobile, Locomobile, Willys-Knight, Peerless	8	20
31x6.20	Franklin, Graham-Paige, Moon, Studebaker	4	6
32x6.00	Chandler, Franklin, Hupmobile, LaSalle, Locomobile, Nash, Peerless, Pierce-Arrow, Velie, Willys-Knight	10	20
32x6.20	DuPont, Elcar, LaSalle, Locomobile, Stutz, Velie	6	15
32x6.75	Cadillac, Lincoln, Marmon, Packard, Stearns-Knight-Stutz	6	21
33x6.00	Buick	1	4
33x6.20	Peerless	1	1
33x6.75	Cunningham, Pierce-Arrow	2	4

EDITORIALS

Confirming the Rubber Agency

WHILE the American rubber agency has been operating fully within legal limits, the need has been felt of ampler powers and more definite sanction by the federal government, not only for this but for other organizations buying collectively raw material grown only abroad and the cost of which is or may be controlled by foreign cartels or governments. Hence the bill pending in Congress to grant larger and more explicit authority to such combinations, amending the Webb-Pomerene Export Trading Act, and which has a saving clause expressly forbidding purchasing pools from operating so as to enhance prices to American consumers, to accumulate unfairly large stocks, or to lessen competition.

Secretary of Commerce Hoover, Harvey S. Firestone and Charles B. Seger for the rubber manufacturers, and John J. Raskob, chairman of the rubber committee of the National Automobile Chamber of Commerce, recently made a strong appeal before the House Judiciary Committee for the passage of the bill, and their arguments were supplemented with an urgent plea by letter from Secretary of Agriculture Jardine. A striking point made by Mr. Hoover was that the restriction in rubber production maintained by the British not only menaces American industry but keeps the world dangerously near a buying panic, apart from its baneful effect of often lifting prices beyond all reasonable limits.

That the American rubber agency has well justified its existence is alone shown by the fact that in the past year it proved to be the one great stabilizing influence in the rubber market. Through its control of some 50,000 tons it kept the market on such even keel that the price range was scarcely nine cents, an unheard-of achievement. The big speculators finally found their occupation gone, and yet in checkmating the price skyrocketing the agency handled hardly 10 per cent of the total amount of rubber consumed in the United States.

* * *

Car Engineers and Tires

THE Rubber Association of America, through its Equipment Committee, last June put itself on record as favoring fewer sizes of tires; and in November the National Tire Dealers' Association voiced the hope that with the cooperation of the tire manufacturers and the Division of Simplified Practice of the Department of Commerce the bugbear of the tiremen—the production of too many unnecessary and slow-moving sizes in casings, would soon be banished. Yet despite this and much other agitation for reform, the "variety performers" still hold the stage with the condition much the same as nearly a year ago when the Department of Commerce found about 20 per cent of the tire sizes serving for some 80 per cent of the total tire volume; and, what was even more uneconomic from a rubber manufacturer's viewpoint, that 80 per cent of the tire sizes brought in but 20 per cent of the total cash received.

It is claimed that about 200 different sizes and varieties of pneumatic tires are being made in American rubber mills. A survey made for the years 1924-1927 by the Passenger Car Wheel Division, Society of Automotive Engineers, shows that but six sizes suffice to equip forty-six makes of cars; and the suggestion of the Rubber Association committee was that car engineers confine equipment to tires in six cross sections, 4.40, 4.75, 5.00, 6.00, and 6.75. Justly or not, the car engineer has been named as the chief foe of tire simplification and standardization.

Competition is keen among automobile builders, and engineers are constantly designing new models to which tires must be fitted to suit their notions. It matters not how tire makers may be troubled in providing new casing sizes, the fiat of the engineer is final. It is he, it is contended, who must be taught to mend his ways; and concerted action by tire makers, tire dealers, automobile builders, the Rubber Association, and the Department of Commerce may soon convert the erring engineer, ending great and needless waste, and redounding to the general benefit of the rubber and automobile industries.

* * *

Technicians as an Investment

ONE well-known American tire manufacturing concern that has always marketed a good product had so long enjoyed good luck that its management never seemed to fear ill fortune. But its luck changed. Competition began to press it closely, and the question of surviving actually loomed. The first impulse was to lower wages, overhead, and even quality, and the second was to plunge on advertising. Happily better counsel prevailed. The management was persuaded to do something that it had long opposed—to disregard all empirical methods of running the factory and to virtually place it in charge of an expert rubber technician. The scientific changes that he wrought within a few months were considerable and beneficent. Many economies came through rigid testing of crude and finished materials, more skillful mastication and mixing, better use of accelerators, more precise regulation of heat and time in vulcanization, as well as in careful control of other details previously considered as of minor importance. Before long the cash register was responding to the improved conditions. Tires were being made better and at less cost. An efficient sales force did the rest, and gladness soon succeeded gloom. Applied research had won another industrial victory.

* * *

A common impression that sponge rubber balls are of recent invention is controverted by a British authority who says that they were described before the Royal Society of Arts in London in 1857.

What the Rubber Chemists Are Doing

New York Group Rubber Division

THE first dinner meeting of the New York Group of the Rubber Division, A. C. S., was held January 11 at the Beaux Arts Restaurant in New York City. The managers of the affair were gratified in unusual degree by the large and enthusiastic gathering that assembled at their invitation. The attendance comprised 240 rubber chemists, engineers, technologists, representatives of dealers in rubber compounding, and guests. Organization of the New York group was affected by the spontaneous as well as unanimous election of Willis A. Gibbons, of the research staff, General Laboratories of the United States Rubber

W. A. Gibbons

Blank-Stoller, Inc.

D. F. Cranor

Co., as group chairman, and Donald F. Cranor, of the development division, Binney & Smith Co., as secretary-treasurer.

Harry L. Fisher, chairman of the Rubber Division, briefly discussed the plan of local group organizations and announced the early publication of the first issue of reprints of Rubber Division papers, supplemented with references to current rubber literature from *Chemical Abstracts*.

Following a social half hour the dinner was in order. At the speakers' table with Dr. A. A. Somerville, chairman of the occasion, was the guest of honor and speaker of the evening, Francis R. Henderson, president of the Rubber Exchange of New York, Dr. Harry L. Fisher, chairman of the Rubber Division, and as many of the ex-chairmen of that division as found it possible to be present. They were J. B. Tuttle, W. W. Evans, E. B. Spear, J. M. Bierer, C. R. Boggs, and W. B. Wiegand.

Mr. Henderson in his speech traced the history of the production of rubber from the time when wild rubber was the only kind on the market up to today, when this rubber forms only 6 per cent of the world's production. Plantation rubber, he said, had been a development of the last quarter of a century.

He described the confusion which existed in rubber trading before the advent of the Rubber Exchange and before grades were standardized. In some of the old code books used in the rubber business as many as 440 grades were referred to. There were few standardized grades and rubber at the factory frequently showed a shrinkage as high as 50 per cent.

The method of transacting the purchase of a parcel of rubber in the primary market by a rubber manufacturing company, through a New York importing concern, was described by the speaker in an example as follows:

The Smith Tire Co., of Akron, Ohio, wants to buy 100 tons of rubber for April arrival in New York. Jones & Co., importers, in New York are offering the desired grade at 41 cents. The price, in view of the market, is satisfactory to the Smith Tire Co., and the executive officer purchases the rubber over the telephone. We shall assume that Jones & Co., importers, have an offering of 40½ cents, delivered in New York, for February shipment from Singapore. Jones & Co. cable to Singapore, accepting this offer. The contract is rendered to Smith Tire Co., covering the sale to them. Contract is likewise rendered by Jones & Co., to the exporter in Singapore, covering the purchase from him.

The next procedure for Jones & Co., is to arrange a letter of credit with his bank in favor of the exporter in Singapore. The bank telegraphs Singapore that such a letter of credit is available, against which drafts may be drawn at 90-days sight to cover the shipment. Documents, that is, invoice, bills of lading and insurance certifiate, must be attached to the draft. Then the bank in Singapore will discount the draft and the exporter is put in funds.

The rubber arrives in New York, is reweighed and shipped to the manufacturer, invoiced, and when payment is received, the draft in the hands of the bank is liquidated by the importer. The voyage to New York and the terms of payment on the part of the manufacturer permit the importer to have the funds in hand before the draft reaches the importer. The volume of business which the importer is able to do depends not only upon his own resources, but also the standing of the manufacturers with whom he does business.

The speaker closed with a lucid discussion of the inevitable need of stabilization of rubber prices and the functioning of the facilities of the exchange and the method by which they operate to secure price insurance to dealer and manufacturer.

Touching on British restriction, Mr. Henderson said:

Many of the leaders in the British rubber industry today feel that the necessity for restriction has passed, just as many of us feel here in America. What the British are trying to do now probably is to perfect the workings of the law before they rescind it, in order that they can revive it at any time when it is needed.

First Akron Rubber Group Meeting

The first meeting of the Akron Group of the Rubber Division, A. C. S., will be held at the Akron City Club on February 15. Dinner at 6:30, tickets $2. The speaker will be Dr. G. F. Lamb, professor of geology at Mt. Union, Ohio. He will talk on the distribution and seasonal fluctuation of Akron's water supply, both surface and underground. Interest will be further stimulated by a brief discussion, by local engineers, of water problems arising in rubber factories.

R. P. Dinsmore

It is expected that a formal organization of the group will be effected and provisions made for the establishment of local membership. Any regular member of the Rubber Division may become a member of the group by stating his wish to do so. Individuals who are not members of the A. C. S. may become associate members of the group by payment of dues, approximately $4 per annum, and this will also entitle them to the periodical issues of reprints of rubber papers which the Rubber Division now plans to put out.

Since two of the primary purposes of this meeting are to discuss subjects of general interest to rubber men and to allow ample opportunity for complete discussion of these subjects by the membership, it is hoped that the attendance will be large and discussion liberal. Although it is desired that as many men as possible be present who are connected with the rubber industry, everyone interested in the subject is invited. Obviously in a new venture of this kind it is difficult to forecast the number to be provided for

and it will be greatly appreciated if as many as possible will purchase tickets in advance.

Properties of Rubber Hydrocarbons

In continuation of an investigation on the electrical properties of rubber,[1] a new method is being developed for the production of rubber hydrocarbon.

Crude or natural gum rubber contains about 93 or 94 per cent of the hydrocarbon to which it owes its characteristic properties. The remainder of the composition is made up of proteins and resins, each to the extent of 3 or 4 per cent, while inorganic salts and other constituents amount to a fraction of 1 per cent. Essentially the method of obtaining the hydrocarbon consists in the removal of the non-hydrocarbon constituents from raw rubber in such a way as to leave the hydrocarbon itself in its original state as nearly as this may be possible.

Removal of the protein is accomplished by digesting crude rubber with water, or with a water-alcohol mixture, at an elevated temperature. In some experiments the digestion was carried out for ten hours at 185 degrees C. Subsequent extraction with acetone removes the resins and also any residual protein hydrolysis products. A portion, though not all, of the salts are removed by the treatments with water and acetone. After the acetone extraction, the product is dried to constant weight.

In appearance and consistency rubber hydrocarbon prepared by this process does not differ greatly from well-milled crude rubber. There is no indication of any marked change in the nature of the hydrocarbon from its state in the original crude rubber.

Complete analysis of the rubber hydrocarbon has not yet been made. The fact that the material is colored is evidence of the presence of impurities, though perhaps in small amount. The nitrogen content of one lot of hydrocarbon was 0.02 per cent, the portion insoluble in benzene was 0.17 per cent, and the ash, 0.08 per cent. The purity of the hydrocarbon is probably of the order of 99½ per cent. For present purposes, high purity is considered less essential than the preservation of the original molecular state of aggregation of the hydrocarbon.

Rubber hydrocarbon undergoes vulcanization on heating with sulphur. Electrical test specimens have been made of compounds of rubber hydrocarbon with sulphur covering the entire range of composition from the hydrocarbon alone to hard rubber. Measurements of dielectric constant, power factor, and resistivity on two lots of hydrocarbon, one derived from pale crepe and the other from up-river Para rubber, gave practically identical results.

The electrical properties of rubber hydrocarbon and its compounds with sulphur differ quite materially from the properties of raw rubber and its sulphur compounds. Specific data on the electrical properties are not available for publication at this time.—*Technical News Bulletin of the Bureau of Standards*, Dec. 1927.—No. 128.

[1] "Density and Electrical Properties of Rubber-Sulphur Compounds," H. L. Curtis, A. T. McPherson and A. H. Scott. *Scientific Papers of the Bureau of Standards* No. 560, 1927.

Hexalin

Hexalin is the abbreviated designation for cyclohexanol or hexahydro-phenol produced by the hydrogenation of pure phenol. It is a neutral water white liquid and, like all higher alcohols, does not dissolve readily in water. Its specific gravity is 0.975, equivalent to 7.9 pounds per gallon. It boils at 155-160 degrees C. and flashes at about 168 degrees C. No discoloration takes place on standing and it is very stable even at the boiling point and evaporates without residue. Like amyl alcohol, hexalin has a high dissolving capacity for solid and liquid hydrocarbons, fats, oils, resins, waxes, etc.

Hexalin or its conversion products are capable of dissolving both crude and vulcanized rubber. The solvent action is exercised both quickly and perfectly and at lower temperatures than is the case with most other solvents. It has been found that celluloid and rubber can each be dissolved in Hexalin and the two solutions afterwards combined. If this mixture is then applied to a glass plate and the solvent allowed to evaporate a fine celluloid-rubber film is obtained.

Paraldehyde

Paraldehyde is a colorless liquid boiling at 124 degrees C. and has a specific gravity of 0.991 at 15 degrees C. The technical grade of paraldehyde boils between 25 degrees C. and 122 degrees C., specific gravity 0.975 at 15 degrees C. Its composition is 90 per cent paraldehyde and 10 per cent acetaldehyde. The technical uses of paraldehyde include the formation of quinaldine from aniline, the preparation of rubber accelerators and the manufacture of synthetic resins.

Acetaldehyde

Acetaldehyde, otherwise termed aldehyde, aceticaldehyde or ethylaldehyde is a very mobile liquid, miscible with water, alcohol and ether in all proportions. It has a peculiar penetrating odor and is highly inflammable. It has a boiling point of 20.8 degrees C. and specific gravity of 0.783 at 15 degrees C. It dissolves sulphur, phosphorus and iodine. It is a very reactive compound entering into combination with many substances. Alkalies transform acetaldehyde into resins with almost explosive violence, while a very small quantity of concentrated acid will cause its conversion to paraldehyde. It is a constituent of certain types of accelerators used in the rubber industry.

S. W. Parr Heads A. C. S.

Samuel Wilson Parr, professor emeritus of industrial chemistry in the University of Illinois, has been elected president of the American Chemical Society for 1928.

Professor Parr devised the Parr calorimeter for determining the heat value of coal and other hydrocarbons, widely used in America and Europe; a new type of calorimeter for determining the heat value of combustible gases; a new alloy with acid resisting properties, and a new calorimeter bomb with an effective substitution for platinum in its construction. He succeeds Dr. George D. Rosengarten of Philadelphia as president of the society.

CARBON BLACK FROM ALBERTITE

Carbon black may be manufactured from albertite, an asphaltum-like mineral found in Albert county, New Brunswick, Canada, by mixing the pulverized substance with air or an inert pre-heated gas under pressure and partially burning the mixture, the resultant combustion products being passed through suitable screens to deposit the carbon. L. Simpson, Canadian patent 272,468, July 12, 1927.

SIMULTANEOUS PROOFING AND CURING

By forcing a rubber solution with a vulcanizing agent, such as hydrogen sulphide and sulphur chloride, into a fabric it is claimed that the later may be proofed and cured in one operation with much saving in cost and time. D. E. Hennessy, U. S. patent 1,642,546, September 13, 1927.

VULCANIZING AND STEEL MAKING

Some physicists liken the use of sulphur in curing rubber to that of carbon in steel making. The addition at a high temperature of a second highly-dispersed phase, as sulphur in the case of raw rubber and carbon in that of iron, results in a curiously similar increase in elasticity and resistance to chemical attack.

RESTORING RUBBER'S STRUCTURE

That the remarkable properties imparted by carbon black to vulcanized rubber may be largely ascribed to the adsorption of this filler in such a way as to virtually form a new gel structure, corresponding with that of the original rubber, which had been destroyed in milling, is the opinion of German chemists who have recently been studying colloidal problems of the rubber industry.

Chemical Patents

United States

1,652,926 REPAIR CEMENT. This comprises approximately 5 per cent of a rubber solution containing 5 per cent of rubber and 95 per cent of naphtha dissolved in approximately equal parts of ether and benzol.—H. A. Blocker and M. L. Mullin, Shreveport, La.

1,653,502 ACCELERATOR. Amide of formic acid is used to accelerate the vulcanization of rubber.—H. Günzler and W. Zeiser, Elberfeld, assignors to I. G. Farbenindustrie A. G., Frankfort-on-Main, both in Germany.

1,653,821 ACCELERATOR. Process vulcanizing rubber consisting in treating it with at least one of the sulphides of phosphorus, and then subjecting the rubber to an after treatment with ammonia.—S. J. Peachey, London and A. Skipsey, Woking, England.

1,654,082 LEATHER SUBSTITUTE. A mixing comprising rubber solution, glue, raw oil, starch and leather fiber combined under pressure.—H. Horowitz, New York, N. Y.

1,654,167 VULCANIZATION. An organic accelerator is added to uncoagulated latex capable of effecting vulcanization in the dried latex at temperatures below those ordinarily employed in hot vulcanization methods.—W. A. Gibbons, Little Neck, N. Y., assignor to The Naugatuck Chemical Co., Naugatuck, Conn.

1,654,240 RUBBER ADHESIVE. Rubber latex is sprayed over a rubber solution applied to surfaces which it is desired to attach.—F. J. Davis, Clapham Park, London, England.

1,654,297 ADHESIVE COMPOUND. This compound comprises rubber, rosin and rosin oil, and a fibrous filler comprising asbestos fibers.—F. S. Malm, Chicago, Ill., assignor to Western Electric Co., New York, N. Y.

1,654,628 COMPOUND. A sound cushioning composition for sound reproducing instruments consisting of fluid rubber, beeswax, an oil drier and varnish.—W. C. Adams, Detroit, Mich.

1,654,793 COMPOUND. An expansion joint composition consisting of a mass of comminuted intimately mixed rubber, cotton fiber, high test asphalt and a body-forming wearing substance. The whole being compacted to form a solid elastic slab sufficiently firm to hold its shape.—E. B. Cowen, Tulsa, Okla.

1,654,844 CAOUTCHOUC DERIVATIVE. A process for the manufacture of hydro-cyclo-caoutchouc by reducing cyclocaoutchouc in presence of a catalyst by means of hydrogen.—H. Staudinger, Freiburg, Baden, Germany, assignor to the Firm Society of Chemical Industry, Basle, Switzerland.

1,654,944 SUBSTITUTE FOR CATGUT. A mixture comprising about 15 to 23 per cent of deresinated gutta percha and one half per cent of sulphur used for impregnating strands of fiber. These are then twisted, vulcanized and the surface of the cured product finished to give it the characteristic appearance of catgut.—A. E. Penfold, R. Truesdale, and R. C. Smith, assignors to the Dunlop Rubber Co., all of Birmingham, England.

1,655,396 ABRASIVE MIXING. A composition comprising abrasive grains, a vulcanizable compound, sulphur and an agent capable of modifying the properties of this compound to render it resistant to heat changes in service.—D. E. Webster, assignor to Norton Co., both of Worcester, Mass.

Dominion of Canada

276,315 LEATHER IMPREGNATING MATERIALS. A process of treating a mixture including paraffin wax and a water insoluble rubbery gum by passing it in the molten state through an extremely fine opening.—The Van Tassel Co., assignee of E. D. Van Tassel, Jr., both of Boston, Mass., U. S. A.

276,316 PLASTIC MATERIAL. A material having the thermoplastic properties of gutta percha comprising rubber mixed with 8 to 18 per cent sulphur and subjected to a temperature of 200-280 degrees C. to render it thermoplastic.—The Western Electric Co., Inc., assignee of International Western Electric Co., Inc., both of New York, N. Y., assignee of A. R. Kemp, East Orange, N. J., all in U. S. A.

276,353 RUBBER COMPOSITION. A surfacing composition made by dissolving crude rubber in benzol and carbon-tetrachloride, cooking the solution at about 100 degrees C. and then slowly stirring in a cellulose composition.—H. P. Butler, New York, N. Y., U. S. A.

276,640 BITUMINOUS COMPOSITION. Ground vulcanized scrap plasticized in asphalt on a mixing mill until the rubber is uniformly and smoothly distributed throughout the asphalt and has lost its visible identity.—The Dominion Rubber Co., Ltd., Montreal, assignee of T. V. Binmore, Long Island City, N. Y., U. S. A.

276,686 RECLAIMING WASTE RUBBER. A process which comprises agitating waste rubber stock in the presence of moisture to cause its absorption. The moistened stock is then manipulated in the presence of a softener and at a temperature above the boiling point of water until a plastic mass containing little water is formed.—The Research Incorporated, Boston, assignee of W. B. Pratt, Wellesley, both in Mass., U. S. A.

276,866 ACCELERATOR. An accelerator of vulcanization consisting of a guanidine substituted on but one nitrogen atom and whose substituents contain a total of more than 6 carbon atoms.—Roessler & Hasslacher Chemical Co., New York, N. Y., assignee of P. M. Paulson, Perth Amboy, N. J., both in U. S. A.

276,868 ACCELERATOR. An accelerator of vulcanization consisting of a reaction product of one molecular proportion each of acrolein and aniline with one molecular proportion of heptaldehyde.—The Rubber Service Laboratories Co., assignee of C. O. North, both of Akron, O., U. S. A.

United Kingdom

278,395 LATEX. A protected dispersion of rubber latex is secured by adding to the latex containing ammonia a solution of aluminum chloride. The aluminum hydroxide formed furnishes the protection. Fillers, vulcanizers, accelerators, preservatives, etc., may be mixed with the product.—Bataafsche Petroleum Maatschappij, 30 Carel van Bylandtlaan, The Hague, and F. R. Moser, Badhuisweg, Amsterdam.

278,689† ACCELERATOR. The reaction products of mercaptans or their derivatives and basic nitrogen compounds, such as ammonia or amines, are employed as accelerators of vulcanization.—Goodyear Tire & Rubber Co., Akron, assignees of L. B. Sebrell, Cuyahoga Falls, both in O., U. S. A.

279,280 ACCELERATOR. An accelerator of vulcanization consisting of an aryl substituted guanidine having an aryl substituent in the ortho position, such for example as the orthofolyl-guanidine.—A. C. Burrage, 314 Commonwealth Ave., Boston, Mass., U. S. A.

279,336 TREATING LATEX. Latex is stabilized by the addition of blood or of its constituents such as defibrinated blood, serum, or preferably, "red end," i.e. haemoglobin. The amount added may vary between 1-10 per cent of the latex according to the degree of stability required. Latex so treated is not liable to coagulate as the result of agitation, addition of fillers, etc., but may be coagulated by the addition of acids.—Rubber Latex Research Corp., Chamber of Commerce Bldg., assignees of M. R. Day, 23 Forsythe St., both in Boston, Mass., U. S. A.

279,342 RUBBER STOPPLES. In preparing the rubber mixing the fillers are omitted and thickened or concentrated latex is used with or without a mixture of vulcanized latex. Sulphur, zinc oxide, etc., may be used as vulcanizing agents. The composition may be applied to disks or rings or they may be impregnated with it.—F. Carl, 56 Cottastrasse, Stuttgart, Germany,

279,406† SYNTHETIC RUBBER. An elastic caoutchouc-like body is obtained if sulphur or sulphur yielding bodies are allowed to effect polymerizating action on saturated halogenized hydrocarbons of the C_nH_{2n+2} group.—J. Baer, Basle, Switzerland.

279,474† ELECTROLYSIS OF RUBBER. In the electrodeposition of rubber, etc., from dispersions, substances are incorporated with porous molds which augment the cohesion of the rubber particles. Calcium compounds or mixtures of calcium and magnesium compounds may be used either as solutions or otherwise for treating the molds.—Anode Rubber Co., Ltd., 15 Throgmorton Ave., London.

279,531 RUBBER SOLES. A compound material particularly suitable for soles and heels of footwear consists partly of crepe or sheet rubber and partly of a sheet material obtained by impregnating woven, felted, or loose fibers with rubber latex, drying and consolidating by heat and pressure.—L. C. Bateman, 37 Argyle Road, West Ealing, London.

279,815† ACCELERATOR. An accelerator of vulcanization comprising a halogen containing or other derivative of an aldehyde-amine condensation product of an aliphatic aldehyde having 2-7 carbon atoms in the molecule and a primary amine. The accelerators may be added to solid rubber either in the mixing mill or otherwise, or they may be added to solutions or dispersions of rubber, including aqueous dispersions.—Naugatuck Chemical Co., Naugatuck, Conn., assignee of S. M. Cadwell, 561 West 58th St., New York, N. Y., both in U. S. A.

† Not yet accepted.

New Machines and Appliances

Automatic Rubber Cooling Rack

THE need of a stock rack for cooling fresh milled rubber batches is met by the device here pictured. It consists of a steel framed structure with shelving arranged in such manner that a few turns of a hand crank raises all of the

Spindel Stock Cooling Rack

shelves at one time and by moving the handle one shelf at a time is automatically released for loading.

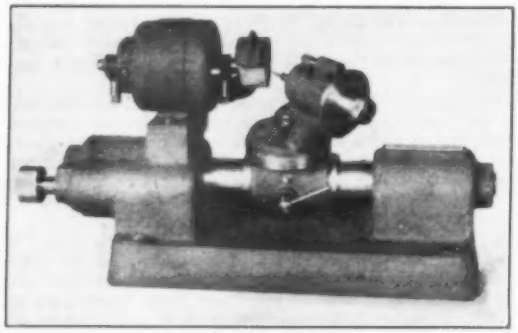
Special characteristics of the rack are its simplicity and ease of speedy operation. The shelves are open on all sides. This permits free circulation of air on both sides of the stock allowing rapid cooling.

The working parts of the rack and pinions are machine cut and of sturdy proportions in order to meet excessive severity of mill room operating conditions.—F. Spindel & Co., Morrisville, Pa.

Cutter Grinder

A special machine tool is here pictured designed for sharpening cutters for engraving machines such as are employed for producing tire tread anti-skid designs. It is correct in design, simple, compact and rigid in construction with universal head adapting it to the grinding of many types of cutters with all kinds of angles and reliefs.

The universal head is a quite flexible unit, adaptable to a



Gorton Cutter Grinder

variety of uses. It is made in four styles any of which is furnished as standard equipment with the grinder.

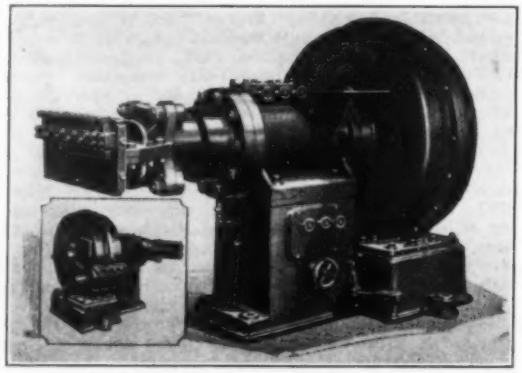
The base is a one piece casting of compact and heavy section, to minimize any vibration imparted through the motor. No provision is made for wheel lubricant for it has been found that a lubricant is unnecessary, and in some cases objectionable, beside causing rust, dirt and a generally unsightly appearance.—George Gorton Machine Co., Racine, Wis.

Tire Tread Tubing Machine

A new and efficient tubing machine specially designed for tire manufacturers is here pictured.

In its design the basic principle is applied of reducing the frictional heat within the machine to permit processing the rubber at higher speed without scorching. The machine is provided with over-size ball bearings throughout, and herringbone gear reduction is used. The ball thrust bearings are 200 per cent over the required rating and permit much higher speed of operation than the old type babbitted marine bearing. Ample water circulation around the cylinder and bead and through the stock screw safeguards the stock.

The machine is driven by a variable speed motor and has flexibility to cover the full range of tubing products. It will



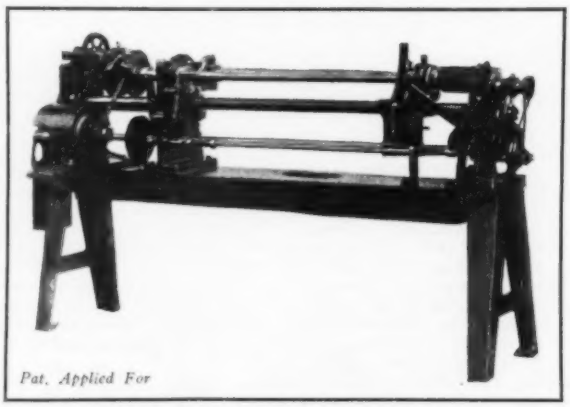
Allen Williams "Rapido" Tuber

take 100 per cent overload without damage and is practically noiseless.

The illustration represents the tuber fitted with adjustable head for running tire treads.—The Williams Foundry & Machine Co., Akron, O.

Automatic Tape Cutter

The illustration pictures an automatic machine designed for cutting rolls of friction and rubber tape. It is the outcome of many years of experiment and accomplishes results formerly considered impossible. The operating details are as follows:



Black Rock Automatic Tape Cutter

The material is wound on a paper core and placed in the machine on a mandrel having a diameter slightly less than the

inside diameter of the core. The mandrel is rotated and the work driven by a chuck, rotated from the mandrel. The cutting is done at the extreme right hand end of the mandrel by a driven circular knife, and the cut rolls delivered to a chute. The work is fed intermittently to the knife. The widths of the cuts are controlled by change gears at the extreme left hand of the machine. By means of a change gear and change sprocket system different speeds necessary for cutting different sized rolls are obtained. The machine is driven by a 1 h.p. motor, and occupies a space 6 feet by 2½ feet. The cutting speeds on either friction or rubber tape are: 1 and 2 ounce rolls at 65 per minute; 3 and 4 ounce rolls, at 45 per minute, and 8 ounce rolls at 25 per minute.—The Black Rock Mfg. Co., Bridgeport, Conn.

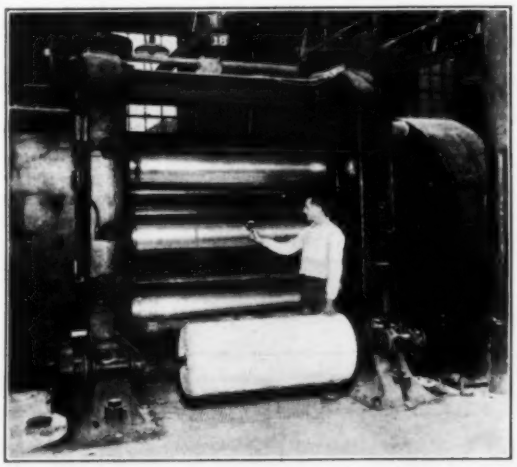
Tire Core Section

A new construction, light weight tire core is here illustrated. It is said to be 50 per cent lighter than cast iron and more substantial than wood, aluminum or iron. The body is of light weight alloy integral with steel base. The shaded lower portion of the sectional view represents a steel tongue casting which means a steel trimming liner and the elimination of breaking and wear. It is adapted to any automatic, quick-acting chuck as the two-ring, washer or any other collapsible type. It is made in all sizes for both high pressure or balloon tires. The manufacturer will supply further data.—The Bridgwater Machine Co., Akron, O.

Bridgwater Core

Surface Temperature Indicator

A convenient hand surface pyrometer is here pictured in use for determining the temperature of rubber calender rolls. It is made in several models required for its application to various industries. The standard range is from 50 to 400 degrees F. and instruments are made to register up to 1,200 F. In the rubber industry roll temperatures can be read quickly and accurately thus closely controlling the narrow heat margin where organic accelerators are used.

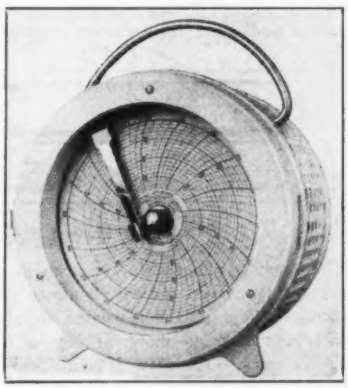


Cambridge Hand Model Pyrometer

For vulcanizing presses, either the hand model or an extension model may be used equipped with flat surface adaptors.—Cambridge Instrument Co., Inc., Grand Central Terminal, New York, N. Y.

Small Recording Thermometer

The recording thermometer here illustrated is smaller than any previously offered. It uses a 4-inch chart only, thus affording the user a reliable record of temperatures in locations otherwise beyond reasonable cost. The instrument is simple, accurate and easy to install. The measuring element consists of a bi-metallic helix which is positive in operation and extremely sensitive to temperature changes. The pen arm is attached to the measuring element and records directly on the chart without the aid of any intervening or complicated multiplying device. The instrument embodies a specially designed clock movement to meet the type of service the recorder is designed to render. It is equipped with a handle for convenience in carrying and with legs for supporting it on a table.—The Bristol Co., Waterbury, Conn.

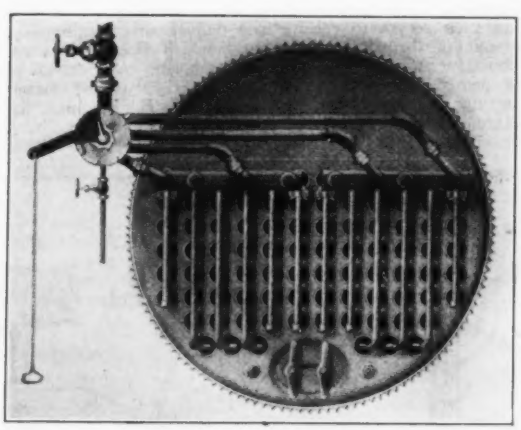


Bristol's Recording Thermometer

Boiler Flue Cleaner

A blowing device for cleaning boiler tubes is represented in the illustration. It is designed only for use with horizontal return tubular and Scotch marine boiler. Unlike other types they employ a separate nozzle in a fixed position for each boiler tube. This makes it impossible for any tube to escape the scouring action of the steam jet.

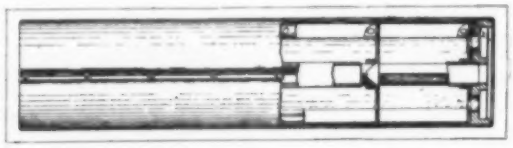
The blower is located in the front of the boiler and is operated from the floor level, the tubes being cleaned in four sections, in turn. Where the up-take is in the back of the boiler, and the hot gases make a third pass over the top of the boiler shell, batteries of nozzles are also provided for cleaning the shell. These soot blowers can be operated with either steam or compressed air without interfering with the steaming of the boiler. Since a one-fifth inch coating of soot is equivalent as a heat insulator to a one-inch layer of asbestos, a substantial economy in fuel invariably results from frequent soot blowing. Further particulars may be obtained from the manufacturer.—National Flue Cleaner Co., Inc., Groveville, N. J.



National Soot Blower

Rubber Stock Shell

A stock shell recently designed for use in rubber manufacturing plants is here shown in a part sectional drawing. It is of all metal construction of heavy gage sheet stock built around a square tubular center carrying numerous supporting disks to stiffen and unite the exterior cylinder with the central portion.



New Haven Stock Shell

This shell is remarkable for strength and durability and combines a large type light shell with ample rigidity to stand all requirements. It is also constructed to allow the addition of apron attachments as is more or less customary in some classes of rubber work.—The New Haven Sherardizing Co., Hartford, Conn.

Machinery Patents

United States

1,652,366. Inner Tube Vulcanizer. This relates to the housing of the valve stem of an inner tube and is adaptable for use with many kinds of vulcanizers. The molding cavity is formed by 2 steam chambered halves. The half accommodating the valve stem is cut away to form a lateral guideway in which a sliding block with flanges is held in place by plates or rails. The upper inner surface of the slide block is cut away to form a smooth continuation of the molding cavity, and eliminates all sharp or feathered edge which if present would chip or break.—Otto J. Kuhlke, assignor to the Kuhlke Machine Co., both of Akron, O.

1,652,473. Tire Vulcanizer. The design of this vulcanizer renders it unnecessary for the usual "rimming up" operation previous to molding. The curing rings can be permanently attached to or made a part of the mold sections and the tire and airbag be placed within the vulcanizer without rimming up. The mechanism for closing and locking the vulcanizer sections is so coordinated and arranged that it will operate to force the tire and airbag in position upon the rings as perfectly and accurately as can be done with the usual hydraulic press.—W. S. Galvin, assignor to The Akron Standard Mold Co., both of Akron, O.

1,653,356. Tire Tread Apparatus. This comprises a long table-like frame on which are mounted a number of belt carriers upon one of which can be spliced together short lengths of breaker strip material to form a continuous strip. A festooning rack serves to receive and deliver this continuous strip to one of the carrier belts upon which side wall strips are similarly attached to form a composite tread strip which is passed through pressing rolls and conveyed away for cutting into tire making lengths.—W. B. Freeman, U. C. Haren and F. P. Hartung, Akron, O., assignors to The B. F. Goodrich Co., New York, N. Y.

1,654,021. Jar Ring Lathe. The features include a mandrel on which the rubber jar ring tube is placed and then held by suction causing the inner surface of the tube to firmly engage the outer face of the mandrel. While the tube is thus sucked onto the mandrel it is cut into rings by the passage of a circular knife entering into annular grooves in the mandrel. The knife advances step by step and on completion of the cutting operation the suction is relieved and air pressure is forced into the annular grooves to release the sliced rings from the mandrel.—A. F. Thener, assignor to Cupples Co., both of St. Louis, Mo.

1,654,022. Jar Ring Counting Machine. Flexible rings are handled in such manner that they are supported and quickly inserted into a package only slightly wider than the width of the rings. The inserting element lies within the rings and enters the package with them. The ring support and inserting parts are then quickly withdrawn from the rings allowing them to drop into the package.—A. F. Thener and J. M. Kountzman, assignors to Cupples Co., all of St. Louis, Mo.

1,654,647. Hollow Ball Machine Blanks formed from sheet stock are continuously fed across the mold cavities of continuously moving molds which are brought into register during the rotation of the molds. This effects joining of the half ball sections prior to which inflating material is introduced to give the article proper form during vulcanization.—S. H. Heist, Penllyn, assignor to Penn Rubber Products Corp., Philadelphia, Pa.

1,654,880. Airbag Inserting Machine. This machine consists of a vertical rectangular framework supporting mechanism which will collapse airbags of all sizes and types quickly and easily and permit their insertion within pneumatic tires. Release mechanism causes the bags to resume their circular position within the tire. Means are provided to introduce air under pressure into the airbag while tire and bag are still in the machine. Thus the apparatus may be used for shaping flat built tires for molding.—C. W. Howlett, Kokomo, Ind., assignor to The Akron Standard Mold Co., Akron, O.

1,655,095. Inner Tube Splicing Vulcanizer. This cylindrical device allows an inner tube, the ends of which have been secured together by curing cement in the usual way, to be inserted and reversed upon itself. In this position air pressure is applied to contact the tube splice against the inner walls of the steam chambered curing chamber.—E. Fetter, assignor to the Pneumatic Tube Steam Splicer Co., both of Baltimore, Md.

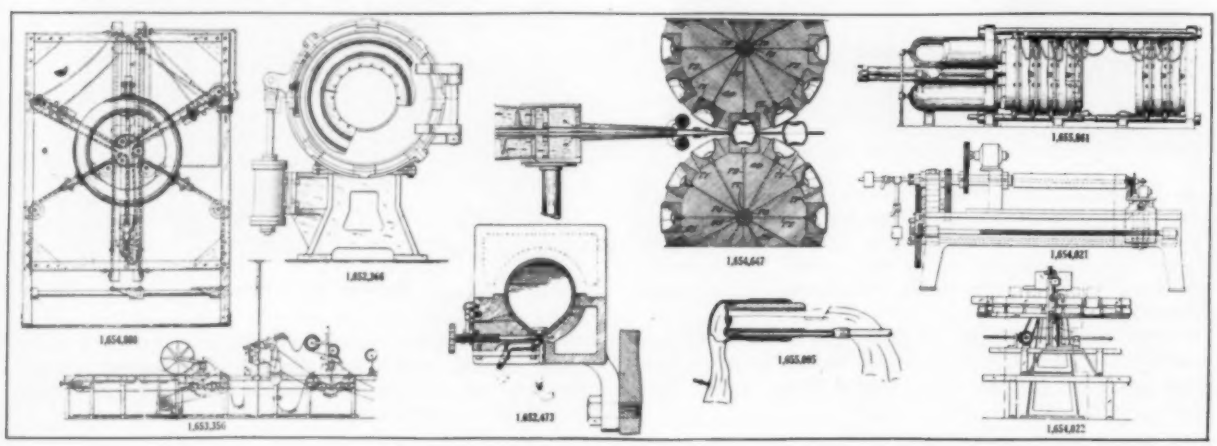
1,655,861. Tire Vulcanizing Press. This is a special type of heater built for the reception of numerous tire molds arranged horizontally. It is operated hydraulically. It is simplified for greater facility of operation and to provide economy of floor space and power in the opening and closing of the mold cavities. Also it provides for detachably locking adjacent mold halves so that one after the other may be opened while the tires contained in the remaining molds may continue to be vulcanized.—R. D. Fritz, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

1,652,218 Mold and Method of Treating Molding Surfaces. A. P. Tallman, Toledo, O.

1,652,414 Tire Spreading Device. Oliver Rule and J. A. Bennett, Chicago, Ill.

1,652,940 Means for Forming Plastic Articles. L. W. Hottel, Erie, Pa.

1,652,991 Press for Forming Plastic Articles. L. W. Hottel, Erie, Pa.



1,653,104 Tire Stripper. Michel Kimmerling, Birmingham, Ala.

1,653,621 Vulcanizer. J. A. Cross, Denver, Colo.

1,653,835 Device for Producing Patterns with Grooves and Projecting Portions on Tire Surfaces During Regeneration. Agide Benaglia, Bologna, Italy.

1,654,001 Mold for Soles and Analogous Articles. J. A. Howard, Johnson City, N. Y.

1,654,173 Machine for Trimming Flash from Rubber Articles. W. J. Kent, Brooklyn, N. Y., and Edward Martin and Frank Kochan, Chicago, Ill., assignors to The Mechanical Rubber Co., Chicago, Ill.

1,654,214 Apparatus for Coating Strip Material. B. A. Evans, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

1,654,351 Method and Apparatus for Making Tire Casings. W. J. Steinle, Flushing, N. Y., assignor to The Hartford Rubber Works, a corporation of Conn.

1,654,526 Method of Operating Extruding Presses. A. B. Brown, Chicago, Ill., assignor to Western Electric Co., New York, N. Y.

1,654,727 Apparatus for Removing Normally Viscous Liquid from Surfaces. E. W. Green and G. R. Unthank, London, England.

1,654,845 Tire Making Machine. W. C. Stevens, assignor to The Firestone Tire & Rubber Co., both of Akron, O.

1,655,496 Boat Mold. J. L. G. Dykes, Chicago, Ill.

1,655,640 Hose Dismantling and Assembling Machine. F. M. Altfather, E. H. Archer and A. B. Rumsey, assignors to Covington Machine Co., Inc., all of Covington, Va.

1,655,641 Train Hose Nipple Pulling Tool. F. M. Altfather, assignor to Covington Machine Co., Inc., both of Covington, Va.

1,655,642 Train Hose Nipple Assembling Tool. F. M. Altfather, assignor to Covington Machine Co., Inc., both of Covington, Va.

1,655,643 Steam Hose Coupling Assembling Head. A. B. Rumsey, assignor to Covington Machine Co., Inc., both of Covington, Va.

1,655,897 Tire Building Apparatus. Alois Feyzes, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

1,655,919 Vulcanizing Apparatus. M. H. Pade, assignor to The Firestone Tire & Rubber Co., both of Akron, O.

1,656,071 Repair Vulcanizing Device. A. F. Lew, Baker, Ore.

United Kingdom

278,654† Apparatus for Shaping Pneumatic Tires. Morgan & Wright, assignee of A. O. Abbott, both of Belleview Ave., Detroit, Mich., U. S. A.

278,655† Matrix for Printing Surfaces. G. Fischer, 25 Detmolderstrasse, Bielefeld, Germany.

279,383† Pneumatic Tire Bead. S. W. Alderfer, 122, North Portage Path, Akron, O., U. S. A.

279,737 Former for Hollow Rubber Articles. J. de Lailhacar, 2 Rue des Italiens, Paris, France.

280,016 Drier. Tomlinsons (Rochdale) Ltd., Soho Works, Rochdale, and E. W. Smith, Glen Iris, Moorside Rd., Flixton, Lancashire.

† Not yet accepted.

Dominion of Canada

276,641 Sole Pattern. The Dominion Rubber Co., Ltd., Montreal, Quebec, assignee of R. G. Anderson, New Haven, Conn., and John Gaines, Woonsocket, R. I., both in U. S. A.

276,642 Stock Cutter. The Dominion Rubber Co., Ltd., Montreal, Quebec, assignee of A. O. Abbott, Jr., Detroit, Mich., U. S. A.

276,647 Knife Bracket for Tire Machines. The Goodyear Tire & Rubber Co., assignee of D. L. Williams, both of Akron, O., U. S. A.

276,648 Machine for Putting Second Flipper on Beads. The Goodyear Tire & Rubber Co., assignee of J. A. Shively, both of Akron, O., U. S. A.

276,649 Machine for Flipping Beads. The Goodyear Tire & Rubber Co., assignee of J. A. Shively, both of Akron, O., U. S. A.

276,650 Chafing Strip Applier. The Goodyear Tire & Rubber Co., assignee of E. F. Maas, both of Akron, O., U. S. A.

276,651 Machine for Gum Stripping Beads. The Goodyear Tire & Rubber Co., assignee of J. A. Shively, both of Akron, O., U. S. A.

276,652 Valve Mechanism. The Goodyear Tire & Rubber Co., assignee of J. A. Shively, both of Akron, O., U. S. A.

276,654 Pneumatic Tire Building Machine. The Goodyear Tire & Rubber Co., assignee of W. E. Shively, both of Akron, O., U. S. A.

276,655 Trimming Device for Tire Building Machine. The Goodyear Tire & Rubber Co., assignee of E. G. Templeton, both of Akron, O., U. S. A.

276,656 Tread Applying Device. The Goodyear Tire & Rubber Co., assignee of E. F. Maas, both of Akron, O., U. S. A.

Germany

453,450. Vulcanizing Press. A. G. Metzler & Co., Munich.

453,627. Belt Stretching Device. G. Siempelkamp & Co., Krefeld.

Designs

Germany

1,011,016. Testing Tubes. The Dunlop Rubber, Co., Ltd., London. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. M. Wirth, Frankfurt, a. Main, and T. R. Koehnhorn and E. Noll, Berlin S. W. 11.

1,011,432. Vulcanizer. Fried. Krupp Gruson Werke, A. G., Magdeburg-Buckau.

Process Patents

United States

1,652,651 Universal Joints. Alfred Weiland, Neshanic, N. J., assignor to Pneumatic Appliances Corp., New York, N. Y.

1,652,726. Securing Tire Stem Pads to Tubes. C. A. Mook, Erie, Pa.

1,654,086. Overshoe. P. H. Margulis, New York, N. Y.

1,655,089 Covered Elastic Thread or the Like. L. B. Chisholm, Stoneham, Mass.

1,655,096 Heelless Overshoe. D. H. Finberg, Brooklyn, N. Y., assignor to The Miller Rubber Co., Akron, O.

1,655,872 Incorporating Sheet Material in a Covering Structure. T. J. Mell, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

1,655,879 Preparing Articles Such as Valve Stem Pads for Inner Tubes. C. C. Shipman, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

Dominion of Canada

276,329 Sponge Rubber Articles. F. V. Wedlock, Chicago, Ill., U. S. A.

276,371 Semi Solid Rubber Tires. Reinhold Goilert, Charlottenburg, Germany.

276,653 Pneumatic Tire Casing. The Goodyear Tire & Rubber Co., assignee of W. E. Shively, both of Akron, O., U. S. A.

276,657 Tire Material. The Goodyear Tire & Rubber Co., assignee of F. B. Smith, both of Akron, O., U. S. A.

276,749 Covering Rollers. C. H. Gray, London, E. C. 4, England.

276,836 Molding Process. The Featheredge Rubber Co., Inc., assignee of H. M. Hood, both of Chicago, Ill., U. S. A.

United Kingdom

278,688† Pneumatic Tires. L. Rauner, 12 Rue Garnier, Neuilly-sur-Seine, France.

279,263 Stoppers. J. Day, Tudor Works, Clevedon Rd., Twickenham, Middlesex.

279,288 Driving Belt. R. J. Reaney, 102 Bank St., Ottawa, Canada.

† Not yet accepted.

Germany

453,551. Renovating Ends of Tubes. Laurots Axsel Laursen, Eau Claire, Wis., United States. Represented by Dr. K. Michaelis, Berlin W. 35

453,699. Gutta Percha Golf Ball Covers. The Dunlop Rubber Co., Ltd., London. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. M. Wirth, Frankfurt a. Main; and T. R. Koehnhorn and E. Noll, Berlin S. W. 11.

453,899. Manufacturing Rubber Goods. Dr. Heinrich Reitz, Bitterfeld.

Editor's Book Table

New Trade Publications

"It Has Arrived" is the title of an illustrated 4-page bulletin issued by The Bristol Co., Waterbury, Conn., descriptive of a small size recording thermometer adapted for portable use or continuous recording in one location.

Services for the Rubber Industry is a twelve page booklet issued by the Department of Commerce, Washington, D. C., describing the activities of the Bureau of Foreign and Domestic Commerce, Rubber Division. This description of the principal bureau services rendered to rubber manufacturers, importers and dealers trading in rubber, and exporters of rubber products, explains what is available to new clients and indicates to older friends how they can profitably use the bureau in new ways.

Greetings, Calendars and Souvenirs

Calendars

The Aluminum Flake Co., Akron, O., sent a beautiful calendar, a reproduction of an original pastel entitled "A Modern Princess."

An art calendar has been received from Charles E. Wood, Inc., 25 Beaver St., New York, N. Y., on which an Indian head is effectively mounted on a dark blue background.

Hartol Products Corp., New York, N. Y., The Rubber Service Laboratories Co., Akron, O., and The Maple City Rubber Co., Norwalk, O., sent large calendars very useful for office reference. The current month in large type occupies the center with the past and coming months in smaller type on either side.

A Christmas scene is represented on the prettily colored calendar of the John Robertson Co., 121-137 Water St., Brooklyn, N. Y.

The Naugatuck Chemical Co., 1790 Broadway, New York, N. Y., sent a refill of the "Ever Ready" calendar for desk use.

A desk calendar and pad combined, in red and gold, is a gift from The Stamford Rubber Supply Co., Stamford, Conn.

An artistic reproduction of a pastel entitled the "Enchantress" forms the background for a beautiful calendar donated by The Cleveland Equipment & Engineering Co., 6306-10 Kinsman Rd., Cleveland, O.

The calendar from the Stedman Products Co., South Braintree, Mass., contains a representation of an old New England mill, very beautiful in its setting of hills, and trees and stream.

Godfrey L. Cabot, Inc., 940 Old South Bldg., Boston, Mass., sent a very neat nickel and enamel finished desk calendar. It is of the perpetual type, a card printed with the day of the month automatically drops showing the day at an opening on either side of a rectangular container as the latter is revolved daily. Circles bearing the names of the months and days are contained in the base of the device showing these names at two separate openings as the cards are revolved.

H. Muehlstein & Co., Inc., New York, N. Y., distributed as a New Year souvenir, copies of a vest pocket loose leaf leather covered memorandum book containing a single page calendar. Each copy bears the recipient's name in gilt letters.

Large calendars printed in red, black and blue have been received from The Schwarzwaelder Co., 1017-1027 Wood St., Philadelphia, Pa., and The Akron Standard Mold Co., Akron, O.

The American Zinc Sales Co., 331 Madison Ave., New York, N. Y., sent a small calendar in two colors.

A Benjamin Franklin calendar from the United Shoe Machinery Corp., Boston, Mass., may be adjusted to stand on top of the desk, the attached illustrated booklet supplying interesting data on events in the life of Franklin.

An effective calendar from The Oak Rubber Co., Ravenna, O., richly colored, represents the head of a girl which is mounted on a background of black set in a frame of green shot with gold.

Cards and Souvenirs

A small pocket memorandum book is the gift of John Royle & Sons, Paterson, N. J.

The Akron Equipment Co., Akron, O., sent a neat pocket magnifying glass in a leather case.

Bound in brown felt, a memorandum pad for the desk is a useful gift from de Mattia Bros., Inc., Clifton, N. J.

The Clyde E. Lowe Co., 2976 East 81st St., Cleveland, O., forwarded a handsome black fountain pen desk set.

Christmas and New Year cards with appropriate greetings were received from the following: Washington Tire & Vulcanizing Co., Inc., Chicago, Ill.; Rubber Division, Department of Commerce, Washington, D. C.; E. H. Clapp Rubber Co., Boston, Mass.; The New Jersey Zinc Co., New York, N. Y.; O. W. Kracht, New York, N. Y.; Mitsui & Co., Ltd., New York, N. Y.; Boston Woven Hose & Rubber Co., Cambridge, Mass.; Industrial Crayon Co., Akron, O.; R. R. Olin Laboratories, Akron, O.; Pequanoc Rubber Co., Butler, N. J.; The Akron Standard Mold Co., Akron, O.; Davol Rubber Co., Providence, R. I.; Riehle Bros. Testing Machine Co., Philadelphia, Pa.; Frederick J. Maywald, Belleville, N. J.; The Toledo Auto Fabrics Co., Toledo, O.; and The Cleveland Liner & Mfg. Co., Cleveland, O.

Recent Rubber Articles

RUBBER, GUTTA PERCHA AND BALATA. Contribution to "International Critical Tables." Volume II, 1927, pp. 254-296.—G. Stafford Whitby, *McGill Univ. Publs.*, Series III, Chemistry, 1927.

CHEMICAL ENGINEERING PROCESSES AND EQUIPMENT ADAPTED BY RUBBER MANUFACTURERS.—P. S. Shoat, *Chem. & Met. Engr.*, Jan., 1928, pp. 34-5.

PROGRESS IN THE CHEMISTRY AND IN THE CHEMICAL ANALYSIS OF RUBBER.—E. Kindscher, *Gummi-Ztg.*, 42 pp., 77-9 (1927).

STUDIES OF GAS BLACK AND ITS USE IN RUBBER.—August Wegelin, A. G., *Kaut*, 1927, pp. 142-4 and 195.

MEASUREMENTS OF THE PARTICLE SIZE OF GAS BLACK.—August Wegelin, A. G., *Kaut*, 1927, p. 196.

THE MANUFACTURE OF HARD RUBBER DUST.—G. A. Vurgason, *Rubber Age*, N. Y., 22, p. 17 (1927).

RUBBER COVERED CABLES AND THEIR MANUFACTURE.—P. Miosga, *Gummi-Ztg.*, 42, pp. 24-5 (1927).

VALUATION OF CABLE COVERINGS BY THEIR PROPORTIONS OF RUBBER BY VOLUME.—W. Esch, *Gummi-Ztg.*, 42, pp. 80-1 (1927).

HEVEA LATEX, VII. Rubber Derived from Preserved Latex.—R. O. Bishop, *Malayan Agric. J.*, 1927, 15 pp. 271-282.

PREPARATION AND ELECTRICAL PROPERTIES OF RUBBER HYDROCARBON.—H. L. Curtis, A. T. McPherson, and A. H. Scott. U. S. Bureau of Standards Notes. *J. Franklin Inst.*, Jan., 1928, pp. 125-6.

MAGNESIUM COMPOUNDS AND THEIR USE IN THE RUBBER INDUSTRY.—E. B. Warren, *Rubber Age*, London, Jan., 1928, pp. 443-5.

SOFT-RUBBER FILTER PRESS PLATES AND FRAMES.—H. E. Fritz, J. H. Clark, Jr., and T. Shriver & Co., *Rubber Age*, London, Jan., 1928, p. 467.

FACTORS IN THE PRODUCTION OF CARBON BLACK.—H. W. Huber, *Rubber Age*, N. Y., pp. 363-4.

NOTES ON COMPUTATION OF MECHANICAL RUBBER GOODS STRUCTURES.—H. P. Gurney and J. M. Lurie, *I. R. Jour.*, Dec. 10, 1927, pp. 1053-55; Dec. 17, 1927, pp. 1089-1092; Dec. 24, 1927, pp. 1125-1126.

CONVERSION OF RUBBER INTO THERMOPLASTIC PRODUCTS WITH PROPERTIES SIMILAR TO GUTTA PERCHA, BALATA AND SHELLAC.—H. L. Fisher, *I. R. Jour.*, Dec. 31, 1927, pp. 1165-68; Jan. 7, 1928, pp. 31-36.

PRODUCTION OF SYNTHETIC RUBBER AN ECONOMIC PROBLEM.—I. Ginsberg. *Auto. Ind.*, Jan. 21, 1928, pp. 84-5.

CHEMICAL AND TECHNICAL RESEARCHES IN THE RUBBER INDUSTRY.—R. Weil, *Gummi-Ztg.*, November 25, 1927, pp. 412-414.

RUBBER TECHNOLOGY FROM THE COLLOID-CHEMICAL POINT OF VIEW.—F. Kirchhof. *Gummi-Ztg.*, Dec. 9, 1927, pp. 526-530.

BROWN FACTICE IN MIXTURES FOR COATING FABRICS.—K. Holzner. *Gummi-Ztg.*, Dec. 16, 1927, p. 593.

PRESERVATION OF RUBBER.—Review of progress based on patent literature of recent years.—Dr. Aladin. *Gummi-Ztg.*, Dec. 23, 1927, pp. 644-645.

CONTRIBUTIONS TO COLLOID CHEMISTRY OF RUBBER LATICES. III.—Individual shape of rubber particles in latex and its hereditary transmission.—E. A. Hauser, *Kaut.*, Dec., 1927, pp. 357-359. Illustrated.

INVESTIGATION RESULTS OF SOUTH AFRICAN RUBBER.—E. Neufeld, *Kaut.*, Dec., 1927, pp. 359-364. Illustrated.

THE PHYSICAL-MECHANICAL PROPERTIES OF VULCANIZED RUBBER AT HIGH TEMPERATURES. II.—A. van Rossem and H. van der Meyden. *Kaut.*, Dec., 1927, pp., 364-371. Tables, graphs, illustration.

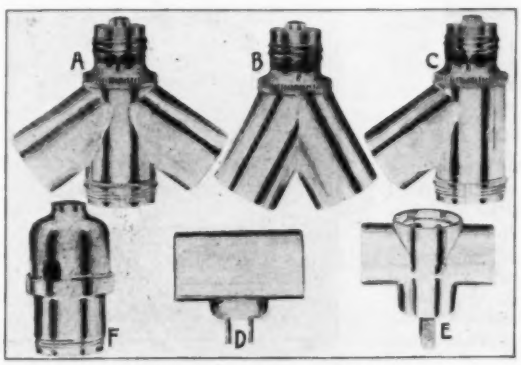
ON THE THERMIC FUNCTION OF THE STRETCHING OF RAW RUBBER.—H. Feuchter, *Kaut.*, Dec., 1927, pp. 372-373. Table, graphs.

DYNAMIC AND STATIC INVESTIGATIONS OF AUTOMOBILE TIRES.—R. Ulrich, *Kaut.*, Dec., 1927, pp. 376-379. Illustrated.

Ileite–Bakelite

That rubber and kindred products are being used more and more in articles formerly made from other materials is illustrated by the accompanying illustration showing several electrical devices and fittings manufactured of Ileite-Bakelite at the Malone, N. Y., plant of the Paramount Rubber Co. *A* shows a triple socket plug; *B* twin socket plug; *C* double socket plug; *D* horizontal twin socket plug; *E* socket and twin plug receptacle; and *F* shell for key or keyless socket.

Not only are brass and porcelain being displaced for Ileite-Bakelite in the outer shells of these fittings but the inner body



Ileite-Bakelite Electrical Fittings

or element, heretofore made of porcelain, is now being made of this material.

Electrical fittings made from brass and porcelain are easily damaged through rough handling. The brass shells tarnish in a short time and if decorated with enamel this is apt to chip and peel, resulting in an unsightly fixture. On the contrary, Ileite is sufficiently resilient to withstand almost any amount of rough handling and wear and tear due to constant service.

An important feature of this material is the fact that it is produced in almost any color and shade to match the color schemes of interior decorations. The coloring matter is a part of the compound from which this material is made and it does not fade or wear off. It is proof against moisture and can be produced as cheaply as competitive products.

Legal

No. 4705.—Protests 110218-G, etc., of Aero Cushion Inner Tire Co. et al. (Detroit).

Solid rubber inner tubes—parts of automobile tires.—Automobile tire inner tubes composed of a porous, spongy substance called "rubber ace" and alleged to contain 53 per cent rubber and 47 per cent air, used as a substitute for the ordinary soft rubber hollow inner tubes, classified as parts of automobiles shipped from Canada, which imposes a duty on similar American goods at 35 per cent ad valorem, were assessed with a like rate under the proviso to paragraph 369, tariff act of 1922.

Opinion by Fischer, Ch. J. The evidence showed that these tubes are not intended to be used as complete tires. Paragraph 1439 provides for tires but not for parts thereof. Murphy *v.* United States (13 Ct. Cust. Appls. 256; T. D. 41201) cited. It was held in Abstract 48484 that inner tubes for automobiles are not to be classified as automobile tires. Therefore, on the authority of Abstracts 50119 and 456 relating to so-called "valve insides," the tubes in question were held properly classified under paragraph 369. *Treasury Decisions*, Vol. 53, No. 2, p. 47.

Patents

The Richardson Company, et al., plaintiffs-appellants, *v.* Hood Rubber Co. No. 2150. Circuit Court of Appeals, First Circuit.

This is an appeal from a judgment of the District Court for Massachusetts dismissing the bill in equity in the suit brought on the United States Letters Patent No. 1,156,122, issued to James C. Woodley, October 12, 1915, for improvement in fibrous compositions and processes of manufacture. The plaintiffs, joint owners of the patent, allege that the defendant infringes on process claims 3, 11, 12, 13 and 15, and product claims 17, 18, 19, 20, 22 and 23.

The decree of the District Court is affirmed with costs to the appellee in this court, November 19, 1927.

1,068,691, J. G. Moomy, patch for rubber article, filed Oct 25, 1927, 7th Cir., Doc. 3979, J. G. Moomy *v.* G. & J. Tire Co. *Official Gazette*, Vol. 365, p. 479.

1,575,884, C. S. Williams, accelerator for the vulcanization of rubber, decided December 17, 1927, claims 8, 16, 19, and 22. *Official Gazette*, Vol. 366, p. 695.

1,612,788, J. Walten, tire flap, filed Nov. 16, 1927, D. C., E. D. Wis. (Milwaukee), Doc. 2120, C. O. Tingley & Co. et al. *v.* The Badger Rubber Works. *Official Gazette*, Vol. 365, p. 659.

(C. C. A. N. J.) The Thropp and De Laski patent, No. 1,119,326, for machine for building tires, held invalid. Murray Rubber Co. *v.* De Laski & Thropp Circular Woven Tire Co., 21 F. (2d) 822. *Official Gazette*, Vol. 365, p. 660.

CHAMPIONS GAS IN WARFARE

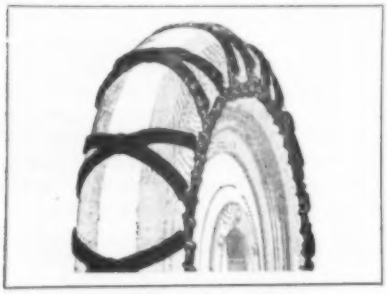
M. André Michelin, noted French tire manufacturer, has published in the *Revue Hebdomadaire* an article favoring aero-chemical warfare in which he reminds his countrymen of the development of chemical warfare service in Germany, Russia, and the United States, and stresses its humanitarian advantages over other military measures.

GERMANY IMPORTED 8,937 AMERICAN TIRE CASING IN 1926, BUT in the first eight months of 1927 it imported 114,921, although they cost 5 to 10 per cent more than German casings. The chief reason given for the preference and the great increase in purchases was the superior wearing quality of the tires. Good salesmanship doubtless helped in scoring such a striking growth in foreign trade, despite powerful European competition, but the main factor was simply giving the utmost for the price,—a fact that American manufacturers would do well to bear in mind whenever they are tempted to lower quality in order to increase profits.

New Goods and Specialties

Rubber Tire Chain

This winter has seen a phenomenal success for rubber chains which are comparatively a new product in the automobile accessory field. There can



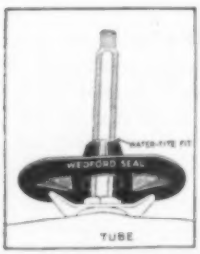
Four-Way Grip Chain

be no doubt that the balloon tire has made the demand urgent for a non-skid device, and this demand has been admirably filled by the patented four-way grip chain illustrated. It is designed to overcome many of the objectionable features of old style steel chains. The rubber cross links lie flat against the tire without danger of gouging or cutting into the rubber. The cross link is individually built of strong gum webbed tire cords and high quality rubber. Each arm of the cross link has thirty of these cords with a bias cut fabric reinforcement.

The four-way grip chain is built in twelve sizes, but the dealer need stock but six to fit ninety-eight per cent of cars manufactured, provided these sizes are carefully selected.—The Gates Rubber Co., Denver, Colo.

Water-Tite Rim Seal

To serve as a protection for the inner tube against the rot caused by metal rust, the Water-Tite rim seal has been recently designed and put on the market. This device is designed to fasten over the valve stem and has proved a popular accessory since its appearance on the market. The manufacturer is The Wedler - Shuford Co., 1116 South Grand Blvd., St. Louis, Mo.



Rim Seal

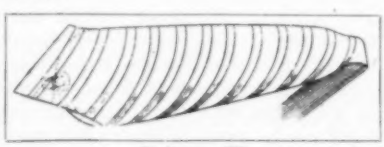
Elastic Grip Life Band

This appliance is in the nature of a buoyant belt or band to be worn round the body and is capable of inflation by the wearer by means of a rubber tube fitted with a one-way air valve. It does away with tapes, ties, buttons, etc., being composed solely of an endless rubber tube having about ten per cent of its circumference flattened and vulcanized, which breaks the air compartment and at the same time makes a sectional elastic grip which adapts itself to any figure. This section is worn at the back as, when bathing, it automatically throws the wearer to the correct angle, keeping the head and shoulders well above the water. The valve is at the front, in the middle of the inflated section of belt. A fabric covering protects the air section and prevents the wearer from overinflating the tube, thus allowing for greater air pressure and consequent floating capacity.—Rogers Bros., 6, Fox Court, Holborn, London, E.C. 1, England.

Mascot Pocket Life Belt

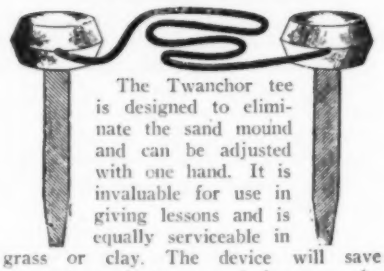
Inflated Lining for Tie

No need of pressing or smoothing out the new balloon tie which is lined with a rubber sac, taking the place of the usual fabric lining, and which is inflated by blowing into a small tube at its end. The tie presents a normal appearance when deflated, the lining not being bulky, and when inflated stretches the tie fabric smooth. When the tie is taken off at night, the sac is inflated and the overnight stretching of the fabric smooths out all creases and gives the tie a fresh appearance. The inventor is T. Rochman who with Theodore Fruchtman of Theodore Fruchtman, Inc., 110 W. 18th St., New York, N. Y., has organized the Balloon Tie Corp. for the promotion of the article.



Balloon Tie

Twin Anchor Tee



The Twanchor tee is designed to eliminate the sand mound and can be adjusted with one hand. It is invaluable for use in giving lessons and is equally serviceable in grass or clay. The device will save twenty-two minutes on each foursome, the long shank permitting its use in long grass, and the rubber top preventing injury to the face of the driver. It is placed by inserting one shank in the ground, pressing the anchoring tee down until the rubber head rests on the ground, and pulling the leash taut. Direction may be given the shot by placing the wire leash and anchoring tee at right angles to the line of play.—The Phillips Rubber Co., Inc., 10 High St., Boston, Mass.

To Prevent Bottle from Slipping

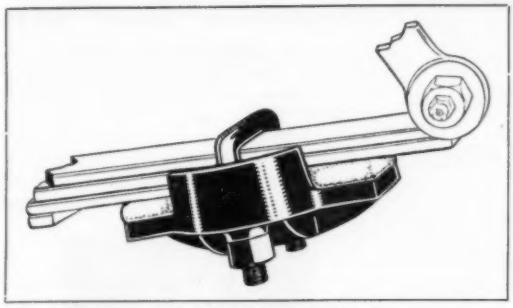
Residue on large bottles in which are kept oil, shellac, acids, distilled water, etc., is the cause of the bottle frequently slipping from the grasp and crashing to the floor, causing delay and inconvenience to the worker. This annoyance may be lessened to a considerable degree by cutting an old inner tube into several short lengths and winding these

Stamp Trade News

pieces around the bottle, the rubber is easy to hang on to and the percentage of accidents is materially decreased.

Life Saving Suit

A rubber life saving suit, which can be attached in a minute and a half and which may float the wearer indefinitely, was recently demonstrated at Newport Beach, Orange county, Calif., by the inventor, Louis F. D'Elia, 305 Loew State Bldg., Los Angeles. The suit is made of 2-ply balloon stock (one straight and one bias ply, well rubberized) and having a tensile strength of 110 pounds to



Weed Spring Check

the square inch. The sections are united by cementing, sewing, and taping. At the top of the suit is a hinged frame of aluminum attached to a bowl-like headpiece also of aluminum. The last-named section contains fourteen holes fitted with unique valves holding small smooth-faced sponge rubber balls, and so arranged as to admit air and yet exclude water even in a rough sea. A belt on the inside contains five small pillows of kapok, or Chinese floss silk to give buoyancy, and on the interior are also several pockets in which several davs' food supply may be kept. The hands may be drawn within the suit or may be extended to act as paddles. In front of the wearer's face is a plate of transparent celluloid.

The inventor obtained patents on the suit in 1906, 1914, and in 1927. He claims that, unlike a diver's, the suit can be put on by the wearer without aid, and that it will carry a minimum of 200

D'Elia Suit and Inventor

pounds. The model was made by a rubber technician, Arthur A. Leltic, owner of the Feather-like Pneumatic Products Company, 5911 S. Broadway, Los Angeles, Calif. It weighs 21 pounds.

Rubber Cushioned Spring Check

The Weed rubber cushioned spring check lessens excessive action of car springs, irons out the galloping and gives a smooth, flowing motion. This is done bv the action of a cushion of live, resilient rubber, a distinctive feature. There are only three parts, the live rubber cushion, malleable iron housing and U-bolt that holds the spring check against the car spring. When attached the rubber cushion practically becomes a part of the springs and is held tight, under continuous compression, against the under side of the ends of the spring leaves. When the car hits a bump or hole the spring flattens out, the cushion retarding any excessive action in the spring, easing it gradually.—American Chain Co., Bridgeport, Conn.

New Tire

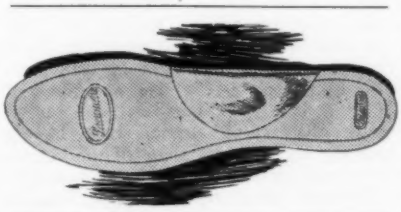
A new tire, Traxion cord, has only recently been announced by the United States Rubber Co., 1790 Broadway, New

Traxion Cord

York, N. Y. It comes in two sizes, 30 by 3½ and 29 by 4.40, the former is priced at $4.25 and the latter at $5.50.

Arch Cushion

An arch support that utilizes the pneumatic rubber cushion is being introduced to the trade by Pneumette, Inc., manufacturer and distributer, 64 Water St., New York, N. Y. The support is a rubber cushion attached to an insole, unbreakable, non-slipping and which may be transferred from one style of shoe to another style of like size. It fits the longitudinal arch of the foot and rests against the upright and hollow part of the foot. A metatarsal type is also available with air cushion for simultaneously lifting both the longitudinal and cross arch. A small pump regulates the degree of inflation to meet the individual requirements for support of fallen arches and may be increased as the arch develops strength.



Pneumette Arch Support

Waterproof Golf Jacket

Showers no longer need keep the ardent golfer from his daily practice, as a new waterproof golf jacket from England is guaranteed by the manufacturer to defy the heaviest rains. It may be donned in a moment, weighs but 16 ounces, and fits snugly at the neck, wrists and hips. Dri-Gof is made from finest Egyptian cloth, closely woven, the inside specially proofed with the finest rubber. Large ventilators in the back and arm pits keep the player cool. Models are provided for ladies' wear as well as men's, a special style for the former also being made up in artificial silk in various shades.—Bond & Bleakley, Ltd., 65 Market St., Manchester, England.

Dri-Gof

Safety Steering Wheel

An important innovation adopted this year by at least seven of the leading car manufacturers is known as the Husted safety steering wheel. It consists of a one piece sheet steel stamping of the rim and spokes which are drawn up in U-bar shape giving maximum strength with minimum weight. Over this skeleton is bonded a complete covering of hard rubber forming a smooth gripping surface for the driver. This construction makes possible a rim of smaller cross section improving its appearance and providing a surer grip. The Husted is unbreakable and therefore makes for safe control of direction in any emergency.—American Hard Rubber Co., Akron, O.

Husted Wheel

Obituary

Vice President Kelly-Springfield

Frederick Augustus Seaman, former vice president and director of the Kelly-Springfield Tire Co., died at his home, 107 Tenth St., Garden City, L. I., on January 9, after an illness of only a few days.

A native of New York, he received his education at the Swarthmore Preparatory School and Swarthmore College, from which he was graduated in 1883. On leaving college he became assistant to the receiving teller of the Trademan's National Bank, and in 1886 secretary to the N. Y. & N. J. Globe, Gas & Light Co. In 1899 he associated himself with the Kelly-Springfield Tire Co., as secretary and assistant treasurer. The following year he became secretary and treasurer, in 1919 vice president and secretary, and in 1920 served as president.

Frederick A. Seaman

Mr. Seaman was a member of the University Club, Lotus Club, N. Y. Athletic Club, Rubber Association of America, Motor & Accessory Mfrs.' Association, and various other organizations.

Sudden Death of U. S. Salesman

Thomas Thornton died suddenly of heart disease at his home at the Empire Hotel, New York, N. Y., on Wednesday, December 28.

Born May 2, 1865, Mr. Thornton's connection with the rubber trade began in 1891 when he became a member of the sales force of the Revere Rubber Co. He had been selling mechanical rubber goods for the United States Rubber Co. continuously for thirty-six years, and had a wide circle of friends in the industry who will hear with regret of his passing.

Promising Youth Fatally Burned

Richmond Courtis Pitcher passed away at the Dickinson Hospital, Easthampton, Mass., on December 26, his death the result of an accident at the works of the Easthampton Rubber Thread Co. He was a son of William L. and Katherine Richmond Pitcher and was born in Easthampton, October 16, 1904. He was educated in the public, Middlesex and Berkshire Boys' schools and Williston Academy, later entering

R. C. Pitcher

the mills of which his father is manager. Wishing to learn the business in all its branches, he worked in various departments and it was while engaged in this work the accident occurred which terminated his life.

The bereaved parents have been the recipients of sympathy from a host of friends who knew and loved the young man because of his quiet, unassuming manners and his faithfulness and application to his chosen vocation.

Funeral services were held December 28 from the home of the deceased.

Henry Van Arsdale Hillman

The death on December 30 of Henry Van Arsdale Hillman is a severe loss to the United States Rubber Co. with which concern he has been identified for many years. Mr. Hillman was born April 1, 1866 and joined the Revere Rubber Co. in 1890, leaving in 1908 to go with the Peerless Rubber Mfg. Co., but returning to the Revere company in 1913, being affiliated with the latter company when it merged in 1918, with the U. S. Rubber Co. He was first employed as a clerk but was soon placed with the selling organization, having among his accounts some of the largest concerns on the books of the company. He made many friends in the industry who admired and respected him because of his sterling qualities.

Manufacturer Passes Away

John J. Chandler who died at his home in New Haven, Conn., December 18, was vice president of The Hoggson & Pettis Mfg. Co. and had been connected with the firm for forty-six years.

Born in November, 1865, Mr. Chandler received his education in the public schools of New Haven and entered the

John J. Chandler

employ of the Hoggson & Pettis company in 1881 as apprentice, learning the trade of die sinking and engraving. As the organization enlarged, he became successively foreman, superintendent and traveling representative, and in 1906 was made one of the officers.

Mr. Chandler traveled extensively through the United States and Canada, enjoying a wide acquaintance among the rubber trade with which he was extremely popular. He was a member of the Rubber Association of America, American Supply & Mchy. Mfrs. Assn., and other trade organizations.

Inventor of Fisk Flap Inner Tube

C. Francis Fisk, first vice president and treasurer of the Fisk Flap Tube Rubber Co., Yardville, N. J., died on December 28, after a long illness. About nine months ago, Mr. Fisk, who invented the tube process bearing his name, was inspecting the work in his Yardville factory when a tube pole fell and struck him in the back. Six months later he was removed to the Cooper Hospital, Camden, where an operation was performed to remove a portion of the broken bone. He was discharged from the hospital and was recovering at his home when he had a relapse. Taken again to the hospital it was found that blood poison had set in and this resulted in his death.

Mr. Fisk was once vice president and general manager of the Nottingham Rubber Co., Trenton, N. J. Several years ago he was superintendent of the Zee Zee Rubber Co., and was also affiliated with the Fisk-Dunham Co. After inventing a patented flap rubber tube he went to Camden where his product was manufactured. He made his home in West Collingwood, N. J. The deceased is survived by his wife and three daughters.

Financial and Corporate News

Fisk Rubber Co.

The Fisk Rubber Co., Chicopee Falls, Mass., has declared a regular quarterly dividend of $1.75 on 1st preferred convertible, 1st preferred and 2nd preferred. The 1st preferred dividends are payable February 1 to stock of record January 14 and the second preferred payable March 1 to stock of record February 15.

General Tire & Rubber Co.

Profit of General Tire & Rubber Co., Akron, O., for the year ended November 30, 1927, was $2,524,325 after interest, depreciation, etc., but before federal taxes. Net sales amounted to $23,692,500, an increase of approximately $4,000,000, or 21½ per cent over the preceding year. Of this gain 20½ per cent was made in pneumatic tires, while the balance was in cushion tires.

Retirement of outstanding preferred stock and issuance of $10,000,000 new preferred stock was recommended at a special meeting January 23, of stockholders of the General Tire & Rubber Co., Akron, O. Of the new issue $3,500,000 par value bearing 6 per cent interest will be offered for sale at $102 a share. Prospects for heavy sales gains in 1928 on top of a record business last year makes necessary additional capital according to President William O'Neil.

Kelly-Springfield Tire Co.

Net income for the year 1927 for the Kelly-Springfield Tire Co. is not expected to be more than $1,000,000, due to tire price reductions and adjustments and charge-offs. Net profits for the first six months of the years were $945,348, equal after preferred dividend requirements to $1.78 per share on the outstanding common stock. On the assumption that the earnings for the last half of the year would keep pace with the first half, it had been expected that the net profits for the entire year would earn $3.50 per share.

The position of the company is very far from being unsatisfactory, the $1,000,000 net profits comparing favorably with the net loss of 1926 of $3,439,800. Loans in the amount of $2,500,000 to $3,000,000 were paid off during the current year.

The company has outstanding $5,000,000 10-year 8 per cent sinking fund gold notes of 1931; $2,950,000 6 per cent cumulative first preferred stock; $5,264,700 8 per cent cumulative second preferred stock; and $9,096,000 common stock ($25 par value). Accumulated dividends on the first preferred issue amounted, October 1, 1927, to 21 per cent, and on the second preferred, November 15, 1927, to 30 per cent.

The B. F. Goodrich Co.

The following statement was issued after a special meeting of the board of directors of The B. F. Goodrich Co., held on January 4, 1928.

The company will offer to the holders of common stock without par value the right to subscribe at $75 per share for one share of common stock without nominal or par value for each six shares of common stock without nominal or par value held by each as shown by the records of the company at the close of business on January 13, 1928, the right to subscribe for such stock expiring on February 3, 1928. The issue and sale of the stock has been underwritten by the company's bankers. The issues will be from the now authorized but unissued common stock without nominal or par value.

Vacancies in the board were filled by the election of George M. Moffett, T. G. Graham and S. M. Jett. T. G. Graham was elected a member of the executive committee.

Dunlop Tire & Rubber Goods Co., Ltd.

Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario, recently drew attention to the fact that dividends have been paid regularly on the 7 per cent preferred stock of the company for the past 28 consecutive years, which constitutes a record for the industry. On March 1, 1927, the company retired in full a bond issue of $600,000 which matured at that date. The company is understood to be in a strong financial position, the treasurer stating that there is no banking indebtedness.

The Hood Rubber Co.

The Hood Rubber Co., Watertown, Mass., announces that the annual meeting date has been changed to the third Thursday in February. This action follows the decision to make the fiscal year end on December 31 instead of March 31. The stockholders have voted to retire 1,500 shares of 7 per cent preferred stock. Coincidental with the above is the announcement of a dividend of $1.87 per share on the 7½ per cent preference stock and the declaration of the regular quarterly dividend of 1¾ per cent on preferred stock, both payable February 1, to stock of record January 20.

Dividends Declared

Company	Stock	Rate	Payable	Stock of Record
Cambridge Rubber Co.	Pfd.	1¾ % q.	Jan. 1, 1928	Dec. 20, 1927
Faultless Rubber Co...	Com.	$0.50 q.	Jan. 2, 1928	Dec. 15, 1927
Firestone Tire & Rubber Co.	6% Pfd.	1½ % q.	Jan. 16, 1928	Jan. 1, 1928
Firestone Tire & Rubber Co.	7% Pfd.	1¾ % q.	Feb. 15, 1928	Feb. 1, 1928
Fisk Rubber Co.....	1st Pfd.	1¾ % q.	Feb. 1, 1928	Jan. 14, 1928
Fisk Rubber Co.....	2nd Pfd.	1¾ % q.	Mar. 1, 1928	Feb. 15, 1928
Hood Rubber Co.....	7% Pfd.	1¾ % q.	Feb. 1, 1928	Jan. 20, 1928
Hood Rubber Co.....	7½ % Pfd.	$1.87 q.	Feb. 1, 1928	Jan. 20, 1928
Miller Rubber Co.....	Pfd.	$2.00 q.	Mar. 1, 1928	Feb. 10, 1928
Miller Rubber Co.....	Com.	$0.50 q.	Mar. 1, 1928	Feb. 10, 1928
Stedman Products Co...	Pfd.	$1.75 q.	Jan. 2, 1928	Dec. 28, 1927
United States Rubber Co.	1st Pfd.	2% q.	Feb. 15, 1928	Jan. 20, 1928

Akron Rubber Stock Quotations

January 21, 1928

Company	Bid	Asked
Akron Rubber Reclaim	28	29
Akron Rubber Reclaim, pfd.	....	100
Falls	4½	6
Faultless	37	39
Firestone	214	218
Firestone, 6% pfd.	110	100½
Firestone, 7% pfd.	110	110¼
General	182	....
General, 7% pfd.	111	....
Goodrich	89½	90½
Godrich, pfd.	111	112
Goodrich, 6½s	107¼	108¼
Goodyear	67½	68½
Goodyear, 1st pfd.	98½	99½
Goodyear, 5s 28	100½	100¾
Goodyear, 5½s 31	100½	101
Goodyear, 5s 57	95⅛	95¼
India, com.	15½	19
India, 7% pfd.	87	....
Mason	1	1½
Mason, pfd.	11	15
Miller	24½	25½
Miller, 8% pfd.	96	97
Mohawk	33	35
Mohawk, 7% pfd.	63	....
Rubber Service Lab.	....	48
Seiberling	40½	41¼
Seiberling, 8% pfd.	104	105¾
Star	1	....

New York Stock Exchange Quotations

January 23, 1928

Company	High	Low	Last
Ajax Rubber, com.	13¼	12¾	13¼
Fisk Rubber, com.	16¾	16	16½
Goodrich, B. F., Co., com. (4)	93	90	92¾
Goodrich, B. F., Co., pfd. (7)	111¾	111¼	111¾
Goodyear Tire & Rubber, com.	69⅝	67	69½
Goodyear Tire & Rubber, 1st pfd. (7)	99	98¼	98⅞
Intercontinental Rubber (1)	19¼	18¾	18¾
Kelly-Springfield Tire, com.	24⅞	23⅛	24½
Kelly-Springfield Tire, 6% pfd.	78	78	78
Kelly-Springfield Tire, 8% pfd.	80	80	80
Lee Rubber & Tire, com.	18½	17¾	18⅛
Miller Rubber, com.	24¼	24	24
Norwalk Tire & Rubber	3¼	3¼	3¼
United States Rubber, com.	61½	59½	61¼
United States Rubber, 1st pfd. (8)	107¾	106¼	107⅜

New Incorporations

THE BARCO CO., INC., December 2, 1927 (Rhode Island), capital stock 100 shares no par value. F. M. Bartlett, 17 Seymour St., W. A. Gunning and J. G. Carroll, both of 403 Howard Bldg., all in Providence, R. I. Principal office, Providence, R. I. To deal in sanitary rubber goods.

S. FELDSTEIN & CO., INC., December 2, 1927 (New York), $20,000. S. and L. Feldstein, both of 324 Oceanview Ave., Brooklyn, W. I. Siegel, 165 Broadway, New York, both in New York. Principal office, Manhattan. To manufacture rubber products.

VICTOR LICHTMAN, INC., January 4, 1928 (New York), $5,000. V. and Y. A. Lichtman, both of 57 Butler Ave., M. Abloff, 416 E. Ferry St., all of Buffalo, N. Y. Principal office, Buffalo, N. Y. To manufacture rubber goods.

LUSHAN CO., October 19 (Massachusetts), $20,000. D. Lushan, president, 1 Maple Court; N. Leibson, treasurer, 497 Blue Hill Ave.; M. Jolles, clerk, 259 Harold St.; B. Dobkin, 125 Devon St., all of Roxbury, Mass. Principal office, Boston, Mass. To buy, sell and deal in rubber cloth.

PROTECTO SANITARY PRODUCTS CO., INC., December 23, 1927 (New York), $100,000. I. Mink, 850 Montgomery St., Brooklyn, K. Heitler, 310 West 72nd St., New York, both in New York. J. T. Callahan, Waban, Newton, Mass. Principal office, New York City. To manufacture sanitary rubber goods.

RUB-R-TITE CORP., January 18, 1928 (New York), capital stock 100 shares no par value. J. D. Hillery, V. T. Ray and M. L. Bong, all of 1118 Liberty Bank Bldg. Buffalo, N. Y. Principal office, Buffalo, N. Y. To manufacture rubber goods.

SANITARY DASH CORP., January 12, 1928 (New York), $100,000. J. L. Mirin, 50 Court St., E. Resnick, 1240 East 7th St., B. Bickoff, 718 Saratoga Ave., all of Brooklyn, N. Y. Principal office, Manhattan. To manufacture rubber goods.

SECTIONAL TIRE CORP., January 20, 1928 (New York), $3,000. J. Arico, 478 Ninth Ave., M. Inzinno, 94 Eighth Ave., M. I. Hauser, 107 Fifth Ave., all of New York, N. Y. Principal office, Manhattan. To manufacture tires.

TROJAN RUBBER CO., December 14, 1927 (New York), $10,000. F. Goldberg, president; S. E. Levene, vice-president; T. Byrne, treasurer; J. G. Feldman, secretary. Principal office, 11 West 42nd St., New York, N. Y. To distribute tires.

UNDERWOOD RUBBER CO., November 30, 1927 (Wisconsin), capital stock 500 shares no par value. C. E. Blake, C. H. Beyer, M. Barry, all of Madison, Wis. Principal office, Racine, Wis. To manufacture rubber goods.

UNITY RUBBER CO., INC., January 10, 1928 (New York), $20,000. R. Manz, 36 West 24th St., B. Gross, 1316 St. Johns Place, both of Brooklyn; N. Greenberg, 878 Southern Blvd., Bronx, both in New York. Principal office, Manhattan. To manufacture rubber goods.

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

NUMBER	SPECIAL CIRCULARS
1741	Rubber Sundries and Specialties.
1742	Tire Exports.
1744	Crude Rubber.
1746	Tire Exports.
1747	Crude Rubber.
1748	Rubber Footwear Exports.
1753	Canadian Tire Exports, November, 1927.
1754	Tire Exports.
1755	Crude Rubber.
1765	Crude Rubber.
1766	Tire Exports.
1767	Mechanical Goods Exports.
1768	British Exports of Automobile Casings, November, 1927.
1769	British Rubber Footwear Exports, November, 1927.
1771	Indo-China Imports 1925-1926.
1772	British Malaya Imports, 1925-1926.
1776	French Tire Exports, November, 1927.
1777	French Footwear Exports, November, 1927.
1783	Crude Rubber.

RUBBER GROWERS ARE GLADDENED TO LEARN THAT NEW EUROPEAN buses will have six driven wheels, all with pneumatic tires. A tire merely rolled wears longer than one on a driven wheel. The motor torque given to the latter causes the wheel to spin in leaving the road, and in getting contact again its tire cannot escape tread abrasion. The six-wheelers were bought with the idea of saving tire wear.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
1056	Manufacturers of aluminum bronze.
1057	Makers of Rublata rubber belting.
1058	Molds to be used in the manufacture of rubber toys, such as animals, etc.
1059	Transparent vulcanized rubber.
1060	Outfit for making rubber stamps.
1061	Rubber cement for attaching rubber soles to leather footwear.
1062	Manufacturer of duck decoys.
1063	Makers of ten and duck pins.
1064	Slitting and trimming machines for footwear.
1065	Suit for sewer diggers.
1066	Manufacturers of tire doughs.
1067	Manufacturers of rubber cements.

Foreign Trade Information

For further information concerning the inquiries listed below address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House New York, N. Y.

NUMBER	COMMODITY	CITY AND COUNTRY	PURCHASE OR AGENCY
28,668	Druggists' sundries	Sydney, Australia	Agency
28,682	Hot water bottles	Prague, Czechoslovakia	Agency
28,683	Waterproof automobile cloth	Krefeld, Germany	Both
28,684	Toilet goods	Wellington, New Zealand	Both
28,693	Rubber bands and erasers	Cordoba, Argentina	Both
28,708	Rubberized and coated fabrics	Turin, Italy	Both
28,732	Automobile tires	Durango, Mexico	Both
28,733	Automobile tires	Durango, Mexico	Purchase
28,758	Surgeons' rubber goods	Cape Town, South Africa	Agency
28,785	Balloons	Oslo, Norway	Both
28,786	Surgeon's gloves	Glasgow, Scot'and	Purchase
28,789	Toys	Rosario, Argentina	Both
28,800	Small rubber novelties	Buenos Aires, Argentina	Agency
28,801	Belting	Vienna, Austria	Agency
28,804	Rubber clothing for firemen	Tallinn, Estonia	Purchase
28,819	Bottle caps	Kobe, Japan	Purchase
28,820	Rubber bathing suits and belts	Milan, Italy	Both
28,821	Gutta percha for dentists	Seville, Spain	Both
28,845	Automobile tires	Smyrna, Turkey	Both
28,894	Toys	Milan, Italy	Both
28,972	Old tires	Saloniki, Greece	Purchase
28,973	Balata and rubber belts	Vienna, Austria	Agency
28,974	Bathing equipment and rubber belts and toys	Vienna, Austria	Agency
28,975	Bathing belts, balloons, rubber caps, water bottles, douche syringes and rubber gloves	Paris, France	Purchase
29,004	Rubber bands and erasers	Cairo, Egypt	Either
29,036	Automobile tires	Harbin, China	Agency
29,059	Boots and shoes	Haslev, Denmark	Agency
29,060	Automobile and truck tires	Hamburg, Germany	Agency
29,061	Tires and other rubber accessories for automobiles	Florence, Italy	Purchase
29,062	Surgical rubber goods	Bussum, Netherlands	Agency
29,079	Tires	Hamburg, Germany	Agency

GAS MASKS FOR OIL WORKERS

Rubber gas masks similar to those used in the World War are being worn by drillers, pipe-lines builders, and truck drivers in many oil fields in Texas, to save them from inhaling natural gas containing hydrogen sulphide. Ten deaths have resulted from the lethal fumes recently in the Crane and Upton county fields, where the percentage of sulphide vapor in the well gas is as high as 12. Even in the Panhandle area, where it is not over 1 per cent, many workers wear such masks continually. The United States Bureau of Mines states that a sulphide content as low as .07 may asphyxiate a person within fifteen minutes.

The Rubber Industry in America

Ohio

Increasing activity in the Ohio rubber industry has been noted. During January tire production was steadily stepped up and the output of rubber footwear has been larger than ever before. Latest advices from the Goodyear, Goodrich, Firestone and Miller plants are that working forces are being enlarged. Upwards of 2,000 men have been added to Akron Rubber company payrolls since the first of the year.

A gain of 12 or more per cent in tire sales during 1928 is predicted by Akron authorities. This would bring the total volume close to $70,000,000 against $62,000,000 last year. Both dealer sales and original equipment are already ahead of last year. About 60 per cent of tires will be balloon this year it is estimated. Notices have been posted at the Goodyear plant that employes must work all day Saturdays.

Goodyear Tire & Rubber Co. injunction suit, instituted by Kent P. Johnson, a minority stockholder, to stop distribution of $60,000,000 bonds and to pay back dividends on the old preferred stock, is scheduled for a hearing in the Cleveland courts early in February. Johnson's court action is based on the allegation that the bond issue, in connection with the Goodyear refinancing program last year, was launched without adequately consulting the company's stockholders. Attorneys for the company deny the allegations and point out that 96 per cent of the company's stockholders approved the issue. Goodyear has taken care of accumulations on the preferred stock, amounting to approximately $16,000,000, by issuing new 7 per cent preferred stock on the basis of 1¼ shares of new stock for each share of old.

Seiberling's Come-Back

Frank A. Seiberling, founder and former president of the Goodyear Tire & Rubber Co., who suffered financial disaster in the slump of 1921, has not only repaid recently personal indebtedness to the company amounting to $5,300,000, but is again rated a millionaire and is once more a power in the rubber industry. His "comeback" during the past seven years has been one of the most remarkable in business history. The Prudential Securities Co., which took over Seiberling's assets at the time of the Goodyear reorganization, was dissolved January 1 and a new concern formed to control 131,000 shares of Goodyear common stock. This company has for its principal directors Seiberling and Edgar B. Davis, former vice president of the United States Rubber Co. Davis is a close friend of Seiberling, and came to his rescue when he was in financial difficulties.

General Tire & Rubber Co.

At the annual meeting of the General Tire & Rubber Co., Akron, O., stockholders were informed that the company had completed its biggest year in sales as well as profits. Net sales amounted to $23,692,500 or a gain of $4,000,000, 21½ per cent over 1926. Of this gain 20½ per cent was made in pneumatic while the balance was in cushion tires.

The following officers were reelected: W. O'Neil, president; W. E. Fouse and C. J. Jahant, vice presidents; T. F. O'Neil, secretary; Charles Herberich, treasurer and J. G. Stoller, assistant secretary. Directors are W. O'Neil, W. E. Fouse, J. A. Diebold, W. L. Beckley, G. F. Burkhardt and T. F. O'Neil. One new member of the board was elected to fill the vacancy left by the death of M. O'Neil and this was R. W. Gallagher.

Goodyear Executive Appointments

R. S. Wilson, formerly advertising manager, has been appointed general sales manager of the Goodyear Tire & Rubber Co., succeeding L. C. Rockhill, who resigned January 1 to join the sales department of the Miller Rubber Co. Wilson has been with the company fifteen years, having served successively as head of the service department, truck tire sales, of the western division and of advertising.

C. T. Hutchins, the new advertising manager of Goodyear, was formerly assistant advertising manager. He joined the company in 1914, serving as branch manager in the coast division, and in sales promotion. Other Goodyear personnel changes include the appointment of G. A. Waddle, formerly manager of dealer sales, to be assistant sales manager; J. E. Mayl, formerly assistant manager of bus and truck tire department, to be head of that division, succeeding G. E. Brunner, who also resigned; and C. E. Cannon, to be assistant manager of sales personnel, replacing G. S. Earseman, resigned.

The National Tire & Rubber Co., East Palestine, O., has been reorganized with C. L. Merwin elected president. C. W. Helman has been made vice president and controller; C. E. Milley, vice president and sales manager; C. W. McComb, vice president and factory superintendent.

Rainbow Tire & Rubber Co. maintains an office in Columbus, O. and a factory in Delaware, O.

Changes in Goodrich Personnel

The B. F. Goodrich Co., since the first of the year, has revamped practically its entire executive personnel. James D. Tew, first vice president and director of the company, is to be general manager in charge of sales, in connection with his other duties. Mr. Tew now handles the duties of W. O. Rutherford, who recently resigned. Climbing steadily in the Goodrich organization since 1917, Mr. Tew served in turn as superintendent of the tire division, assistant works manager, works manager, and now first vice president. For assistants he has C. E. Cook, general sales manager of mechanical rubber goods, footwear and druggists' sundries; H. C. Miller, manager tire sales, automotive division; L. A. McQueen, manager tire sales, dealers and distributers division.

Other personnel changes are: T. A. Aspell, to be assistant manager of manufacturers' sales division, with supervision over government and aeronautical sales; H. M. Bacon, former district manager on the Pacific coast, special representative of manufacturers' sales division in Cleveland; C. B. O'Connor, manager bus and truck tire department; E. R. Kenner, district manager in New York; A. H. Leavitt, transferred to Akron as sales representative for bus and truck tire department; J. T. Kennedy, to be manager of manufacturers' sales in Detroit, succeeding Gregory Flynn, who has been transferred to New York to be in charge of the manufacturers' sales division in that district.

Plant 2 for Wilson Rubber Co.

The purchase by The Wilson Rubber Co., Canton, O., of the old Republic factory, has been announced. The plant is located on the main line of the Pennsylvania Railroad at Marion Ave., S.W., and will be used and known as Plant 2. Considerable equipment has been ordered, repairing and remodeling begun and officials expect to have the plant under production within two months. The main structure has two floors and basement and contains approximately 80,000 square feet of floor space. It is constructed of brick and reenforced concrete. A one story saw tooth roof building 60 by 100 feet and several smaller structures are included. The site covers four acres.

The Wilson company is said to be the largest manufacturer of rubber gloves in the world and its products include gloves for surgical, household, industrial and electrical use. Officials of the concern are Fred J. Wilson, president; Wendell Herbruck, vice president and secretary; and Karl P. Herbruck, treasurer.

Boston Woven Hose Honors Veterans

The Boston Woven Hose & Rubber Co., on December 30, 1927, honored its 338 veteran employes who had served the company for ten years or more by presenting them with the annual Christmas gift of gold distributed by representatives of the firm. Dennis Gallagher of the mill room outranks all other employes in the length of his service. He has served the company since May, 1884, a total of forty-three years of honest labor. George Cox of the rubber belt department ranks next with a period of forty-one years of service. In all there are sixty-eight employes who have been with the firm for a period of twenty-five years or more, a record of which no industry need be ashamed. The "old-timers'" list was started in 1915 with 105 names and has been increasing in numbers every year since that time.

Tire Fabric Plants Insist on Citizenship

The Firestone and Goodyear tire fabric plants at New Bedford, Mass., have announced that from now on only American citizens will be employed. It is understood that the Fisk plant here will also adopt the same policy although no official notice has been given. A poll tax bill and naturalization papers or an application for first citizenship papers are required from applicants seeking positions. This policy also applies to those already employed in the plants. Failure to secure citizenship will mean the loss of a position.

George Danielson, local manager of the Firestone mill, explained the position of his company as follows: "In recruiting a working force we are trying to get the best possible type of workers and to eliminate at the start those who will not be permanent. In line with this policy, my orders are to take applicants only from those who are American citizens or are in the process of being naturalized."

"The citizenship requirement is in line with the policy of the Goodyear company elsewhere," said L. S. Hall, general superintendent of the local plant. "When we hire a worker we want to make him a permanent member of our organization who will progress as he grows in experience. We try to maintain the highest possible standards of ability and intelligence among our workers, and to do this we find that a knowledge of the English language is highly desirable, and virtually essential."

Stedman Products Co., South Braintree, Mass., manufacturer of reinforced rubber flooring, reports two more large orders for foreign shipment. One of these shipments is going to South America and the other to Paris, France, both being for banking houses. These two orders, with previous shipments to Holland, Japan and South Africa, are most gratifying to the company as it emphasizes the high quality of its product.

New England

The prospects of the rubber industry in New England for 1928 are very bright. The early reopening of the fabric mills and the introduction of the new automobile models presages a good year for those producing tires and tubes. Footwear demand for the coming year is expected to be very heavy. From present indications the major problem in this line will be one of production rather than sales. Coated fabric makers anticipate a big year with many companies planning to introduce elaborate new colored lines and finishes. Mechanical rubber goods plants are operating at an average rate at present, with increased business expected in the early spring months.

The Firestone Tire & Rubber Co.'s Manomet No. 4 fabric mill in New Bedford, Mass., opened January 3 to receive applications for employment. The mill will start on single shift operation and will employ 1,000 workers. It is planned to employ 1,000 more as soon as additional equipment arrives to make two-shift operation possible.

The Goodyear and Fisk, Devon Mills and Fisk Mills, respectively, also opened their employment departments on January 3. Operations, which will begin on a single shift basis, will be extended as rapidly as possible to the schedule prevailing at the two New Bedford plants prior to their closing on November 1, 1927.

The Miller Rubber Co. announces the purchase of 19,500 square feet of land on Brookline Ave. at the corner of Fullerton St., Boston, Mass. The company plans the erection of a three-story building which will become the headquarters for this section of New England.

The State of Massachusetts has awarded its contract for 1928 for the supply of automobile tires and tubes to the Fisk Rubber Co.

The F. S. Carr Co., Framingham, Mass., manufacturer of raincoat fabrics, recently announced the resignation of J. A. Duval as plant superintendent. Mr. Duval, who has been connected with the organization for the past 12 years, has not yet announced his future plans. H. R. Haertel, Ph.D., consulting chemist and rubber technologist of Wrentham, Mass., will serve in the capacity of plant superintendent. The company is now perfecting an elaborate new line of vari-colored, alligator grain, raincoat material.

John A. Gillooly, formerly associated with the Cotex Co. of New Jersey as superintendent of the rubber division, is now with the Reading Rubber Co., Reading, Mass. He is superintendent of the calendering department.

Hugh Bullock, it is reported, has purchased an interest in the Tyer Rubber Co., Andover, Mass., and will take an active part in its management. As president of the Converse Tire & Rubber Co., Mr. Bullock made many friends in the trade.

George C. Moore Co., elastic web manufacturer of Westerly, R. I., states that several employes were overcome by gas from a broken four-inch main in the factory last week. Among those overcome was Harold Moore, vice president of the company. The factory, employing over 300 hands, was forced to close for the day. No serious results are expected from the employes affected by the gas.

The Massachusetts Tire Sales Co., will open a new sales and service station at 1041 Commonwealth Ave., Boston, Mass., next week. It will carry a complete line of Hood tires and tubes. Another sales and service station of this company is already located in Boston at 300 Dorchester Ave.

The Samuel L. Barrabee, Inc., has opened a new tire sales and service station at 143 Brookline Ave., Boston, Mass. This company has been doing business in Boston over a period of twenty years and increased business has prompted the erection of a modern plant with separate departments for the sale and service of tires, etc. It will continue to carry a full line of Firestone products. On the opening day five hundred toy balloons were set off and attached to many of them were orders for tires, tubes, etc., if returned to the store within a period of ten days.

The Cambridge Rubber Co., Cambridge, Mass., has recently run a contest over a local radio station whereby prizes amounting to $3,000 were offered for a slogan to advertise its new rubber overshoe known as Kid Boots. The money was divided into three different contests of $1,000 each.

The Balloon Rubber Heel Corp. has selected Beverly, Mass., for the location of its new plant and will make balloon rubber heels as well as novelty soles. Three floors of a large building are being remodeled for the uses of the company.

The Firestone Tire & Rubber Co. has just moved its Boston office to the beautiful new building at 41 Brookline Ave., corner of Fullerton St. Every facility has been installed to render prompt and efficient service to dealers, it being one of the most modern and up-to-date distributing tire outlets in the country.

A. T. McGrath has been appointed branch manager of Boston. Mr. McGrath is well known in the rubber field, having been associated with Firestone for several years, in Worcester, Akron, New York and until recently branch manager at Hartford. Having also opened and built up the Firestone warehouse accounts in Bridgeport and New Haven, his experience is most practical from the retail as well as the wholesale point of view.

The Miller Rubber Co. has purchased 19,500 square feet of land adjoining railroad connections on Brookline Ave., Boston, Mass., on which it will erect a three-story building. The plant will become the company's New England headquarters.

C. C. Davis, of the Boston Woven Hose & Rubber Co., has been appointed editor-in-chief of the publication of chemical reprints, sponsored by the American Chemical Society. This will contain reprints from A. C. S. journals, rubber trade papers, and translations of important foreign articles. It is planned to make this journal available to non-members as well as members.

Rhode Island

The Davol Rubber Co. is making extensive additions and improvements to its plant in Providence, R. I. One of the most noticeable of the exterior improvements is the erection of an ornamental marquee over the sidewalk at the South St. entrance. The company reports having done a very steady and satisfactory business during the past year the aggregate being in excess of the previous twelve months. The new year has opened up very promisingly and it is expected that this year's books will show to better advantage than preceding years.

Edward J. Fenelon Jr., manager of the Standard Oil Co., filling station at the junction of Franklin St. and East Ave., Westerly, has been appointed local agent and distributer for the Goodyear Tire & Rubber Co. He will conduct his new tire and service business under the name of Fenelon's Tire Service.

The B. F. Goodrich Rubber Co. suit against the Naylor Tire Co., Woonsocket, was heard before Judge Sumner and a jury in Superior Court last month and a verdict returned for the plaintiff for $542.85 and costs.

The Pilgrim Rubber Corp.'s Woonsocket plant is now operating only ten per cent of its normal capacity, but officials have not considered closing the mill or moving to another locality, according to the secretary, Samuel Elovitz. A lull in the business has made it necessary to greatly curtail production during the past few weeks. The concern, which manufactures raincoat cloth, employs 100 hands when operating at capacity.

John Grabert, chief of the Bristol fire department, was reelected to the office of chief of the National India Rubber Co. fire department at the organization's annual meeting recently. Other officers chosen for the ensuing year follow: Deputy Chief, Daniel Dwyer; Clerk, Henry Brown; Treasurer, Frederick Guevremont; Orderly, George Langstaff; Fire Commissioner, Christian A. Ostby. All the officers, including the chief, are employed at the National company's plant.

New Jersey

The New Jersey rubber industry is showing improvement in some lines while in others it has dropped off a little. Tire manufacturers report that orders for both tires and tubes are beginning to increase and that the spring like weather of early January caused a demand for casings. Producers of mechanical rubber goods have increased prices and they are encouraged over the outlook for business. The hard rubber factories are not overcrowded with orders. One plant is reported to be closed down indefinitely. Demand for heels and soles continues good.

William H. Koons, affiliated for many years with the Thermoid Rubber Co., Trenton, N. J., has been transferred from the Pacific Coast and will travel from the main office to all parts of New Jersey. Formerly in the employ of the Mercer Automobile Co., he joined the advertising department of the Thermoid Rubber Co., and a few years ago was made manager of the company's branch at San Francisco, Calif.

A. H. Massey, general sales manager of the Combination Rubber Co., Trenton, N. J., is on an extended business trip through the west and is also visiting the company's branches along the Pacific Coast.

Edward C. Fulper, president of the American Oil & Supply Co., Trenton, N. J., who died some time ago, left an estate of $163,132.60 according to an accounting of his estate in the Mercer Orphans' Court. The money is left to relatives and charitable institutions.

The Pierce-Roberts Rubber Co., Trenton, N. J., announces that business has dropped off a little during the past month. The company had been operating with a night force for a long time.

The Vulcanized Rubber Co., Morrisville, Pa., shut down its factory a few weeks ago. This is the first time that the plant has been closed, other than the taking of an inventory, for several years. Some time ago the concern was running to capacity on all kinds of hard rubber.

The Joseph Stokes Rubber Co., Trenton, N. J., reports that business is beginning to show a little improvement after a rather dull summer and fall season. The company's plant in Canada continues to operate to capacity.

The Luzerne Rubber Co., Trenton, N. J., manufacturer of hard rubber goods exclusively, announces that business is only fair at this time, but officials believe that conditions will improve shortly.

General C. Edward Murray, president of the Crescent Insulated Wire & Cable Co., Trenton, N. J., and Mrs. Murray have been spending some time in Quebec, Canada.

The New Jersey Tire Dealers' Association has been incorporated under the laws of New Jersey and will establish offices in Jersey City. Incorporators are: Samuel Bernhardt and Christine Smith, Newark, and J. N. Graham, Garwood.

The Murray Rubber Co., Trenton, N. J., states that in addition to a new 24,000 mile De Luxe tire, the regular standard Murray tires for the distributer and Empire tires for the big wholesalers have been greatly improved, and if desired will be sold with one-year unconditional guarantee against misuse and abuse of every kind and description. Many new factory representatives are being added to the sales force and the Murray officials are expecting a big year.

The Essex Rubber Co., Trenton, N. J., announces that business is very satisfactory and that prospects are good for the spring season.

Franklin Williams, Inc., is now located at 451 South Jefferson St., Orange, N. J.

DeLaski-Thropp-Murray Suit

The United States Supreme Court has denied the appeal for a writ of certiorari to review the decision of the Circuit Court of Appeals in the suit of the DeLaski & Thropp Circular Woven Tire Co., against the Murray Rubber Co., Trenton, N. J.

The Circuit Court of Appeals reversed the decision of the United States District Court, which had awarded a verdict against the Murray company and in favor of the DeLaski & Thropp Co. The decision of of the Circuit Court in favor of the Murray company now stands.

The suit involved alleged violation of patents of the DeLaski & Thropp Co., and had the original verdict against the Murray company been upheld, other suits against large tire manufacturers of the country would have followed.

A device by means of which fabric was formed about the walls and bead of tires, incorporated in a tire-making machine, was the basic point of the litigation. The DeLaski & Thropp firm held a patent on the device, and alleged that other tire manufacturers were using the machine without license. The proposed suits, if they had been brought to trial and were decided favorably to the complainants, would have netted millions of dollars.

Foremen's Conference

Over 150 foremen from various industrial plants of the city and vicinity attended the first of a series of foremanship conferences the other evening, held under the auspices of the educational department of the Providence Young Men's Christian Association. John Glenn, sales manager of the hard rubber division of the United States Rubber Co., was the speaker. Speaking on the subject "The Foreman's Effect on the Sale of Product," Mr. Glenn declared that the foreman is in position to turn the casual buyer into a regular customer through prompt deliveries and quality of work.

Eastern

John Young has severed his connection with Wishnick-Tumpeer, Inc., New York, N. Y., and has also resigned as president and general manager of the Pioneer Asphalt Co., Lawrenceville, Ill. Mr. Young has as yet made no announcement of his future plans.

The Rand Rubber Co., Inc., 397 Sumner Ave., Brooklyn, N. Y., plans to increase its capitalization from $50,000 to $100,000. The company has met with great success with its etched rubber aprons, developed by its own process of printing upon rubber.

Vansul, Inc., 90 West St., New York, N. Y., has taken Suite 1006, in the same building in which the company has been located for the past year. The new quarters are larger and were made necessary by increased business.

H. Stuart Hotchkiss was elected chairman of the board of directors of the General Rubber Co., 1790 Broadway, New York, N. Y., and L. D. Tompkins was elected president to succeed Mr. Hotchkiss, who had been president since 1917. The General company is one of the largest and oldest crude rubber companies in the world, and is owned by the United States Rubber Co.

V. G. Thomas & Co., 99 John St., New York, N. Y., is sole agent for Antimony Products & Chemical Co., Ltd., Beckenham, England, producer of antimony sulphides and rubber substitutes. The Thomas company is also agent and distributer for America and Canada of French ochre produced by Société des Ocres du Midi, Vaucluse, France.

Dispersions Process, Inc.

A new company known as Dispersions Process, Inc., a Delaware corporation, has acquired all the assets of Research, Inc., and its subsidiary Aqua Rubber Co., of Boston, Mass. A plant is being erected at Oaks, Montgomery County, Pa., adjacent to the eastern plant of the Philadelphia Rubber Works Co. The officers of Dispersions Process, Inc., are: J. K. Mitchell, chairman of the board; John A. Stevens, president; R. S. Rauch, vice president and general manager, and H. W. Chaudoin, secretary-treasurer. The board of directors follows: J. K. Mitchell, president, Philadelphia Rubber Works Co.; John A. Stevens, president Research, Inc.; Harry Hough, president, The B. F. Goodrich Co.; J. D. Tew, 1st vice president, The B. F. Goodrich Co.; Lucius R. Eastman, president, Hills Bros. Co.; J. S. Lowman, 1st vice president, The Philadelphia Rubber Works Co.; R. S. Rauch, 2nd vice president, The Philadelphia Rubber Works Co.; T. G. Graham, works manager, The B. F. Goodrich Co.

In a forthcoming issue of INDIA RUBBER WORLD will be published a comprehensive article on the applications of rubber dispersions in industry.

INDIA RUBBER WORLD'S EDITOR GUEST OF EDISON

Henry C. Pearson, editor and founder of INDIA RUBBER WORLD is sojourning in Florida and will be the guest for a short time of Thomas A. Edison at Fort Myers. Mr. Pearson is recognized as a world authority on rubber, has traveled extensively in the tropics of both hemispheres and has written exhaustively on the subject. Other visitors to Mr. Edison will be Harvey S. Firestone and Henry Ford, both of whom have embarked on large scale rubber growing enterprises, namely in Liberia and Brazil.

Men, machines and materials have been assembled at the Fort Myers laboratory, and Mr. Edison will continue his researches in extracting rubber from native plants. Associated with him in this work, will be Dr. John K. Small, head curator of the museums and herbarium of the New York Botanical Garden, who has been investigating flora and floristics of the southern states for nearly thirty years.

The Beaver Mills, Inc., has discontinued operations at the Northside mill, Cohoes, N. Y., and it is understood that the machinery will be transferred to the North Adams plant. George E. Luce, who was manager of the plant, was removed to the North Adams mill several weeks ago.

J. N. MacLaren has been added to the sales department of the American Hard Rubber Co., 11 Mercer St., New York, N. Y. Mr. MacLaren, who has had considerable experience in the rayon industry, will devote most of his time to that field.

New Chairman of Steel Corp.

Myron C. Taylor, who was recently made chairman of the Finance Committee of the United States Steel Corp., was formerly a member of Taylor, Eagles & Armitage, tire fabric factors.

Tire Division Discontinued by Hewitt-Gutta Percha

It is reported that the final details of the consolidation of the Hewitt Rubber Co., Buffalo, N. Y., and the Gutta Percha & Rubber Mfg. Co., New York, N. Y., have been worked out and the merged properties now are known as the Hewitt-Gutta Percha Rubber Corp. The plant of the Gutta Percha company has been moved from Brooklyn to Buffalo. The new company announced the discontinuance of the tire division and will concentrate on the production of other rubber goods.

Thomas Matchett is president of the new firm; J. H. Kelly, F. E. Miller and F. V. Springer, vice presidents; and W. J. Magee is secretary-treasurer.

E. T. Morris has been made a district advertising manager, with headquarters at Philadelphia, for The B. F. Goodrich Rubber Co. Mr. Morris was formerly advertising manager and assistant sales manager of the American Rubber & Tire Co., Akron, O.

The Philadelphia Rubber Works Co., Philadelphia, Pa., will start work on a new addition to its plant at Oaks, Pa., at an early date. It is said the cost, with equipment, will be in the neighborhood of $40,000.

The Calloway Mills, Inc., will open a sales office in Charlotte, N. C., to be in charge of Harold J. Calloway.

Godfrey L. Cabot, Inc., Boston, Mass., has contracted with the Roxana Petroleum Corp. to take the waste residue gas of Roxana's gasoline plant near Skellytown, Texas. This gas, which would otherwise waste into the air, will be converted into carbon black by the Cabot company at the large plant it is constructing near this point.

Carolina Rubber Co. Reorganized

The Carolina Rubber Co., Salisbury, N. C., announces the appointment of C. H. Waggener as its vice president and general manager, filling the vacancy created by the resignation of C. S. Munro. Mr. Waggener had been district manager of the Postal Telegraph Co. at Charleston.

The new policy of the Carolina company will be to render one hundred per cent service in all its transactions, and plans are under way to materially enlarge its sales force. An addition will also be made to the plant.

The personnel of the company is as follows: Justus Collins, president; C. H. Waggener, vice president and general manager; Gene Moore, production manager; and G. E. Rusher, sales manager.

MODERN FORM OF TRANSPORTATION FOR VATICAN

The traditional horse-drawn carriages so long in use by the Vatican in Rome will be displaced with the more modern form of transportation—automotive equipment. Until two years ago an automobile was never used in the gardens and grounds adjacent to the apostolic palace, but at the time the Pope was presented with a car by one of the leading Italian manufacturers. Gifts from other makers followed, the latest being one from the General Motors.

UNITED STATES AND MEXICO AIR MAIL

The practicability of an air route connecting the United States and Mexico having been demonstrated by Lindbergh's flight, Postmaster General New, it is reported, has announced that he would open bids for a two day mail service between the two countries. Companies interested are invited to get in communication with the department.

Pacific Coast

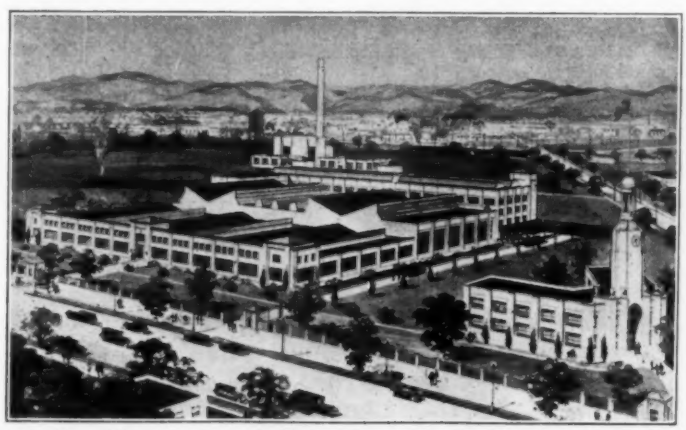
United States Rubber Co.'s Pacific Coast sales in unit and dollar value showed a higher percentage increase than those in any other section of the country. Many additions have been made lately to the sales force at the local branches, and it has been found necessary to provide a new building for the branch at San Diego, where C. B. Cowgill is in charge. E. C. Conlin, of New York, manager of golf ball sales, and Mrs. Conlin were January visitors in the southwest. J. B. Magee, Los Angeles branch manager, announces the appointment of I. S. Shull as manager of tire sales. The Los Angeles branch recently parted with one of its best salesmen, E. E. Evans, who went to the main United States Rubber Co. office in New York to join the export division with special charge of Tokio sales.

American Rubber Mfg. Co., San Francisco, Calif., reports that its plant at Emeryville, Calif., an Oakland suburb, working to capacity. Last year it installed four looms more, making eight in all, for braiding fire hose, of which it is said to be one of the largest producers in the country. Not only are large sales made on the Coast but also through factory branches in Georgia, Texas, New Mexico and Arizona. Belting is another considerable product, one installed lately for the California (Building) Materials Co. at Irwindale, near Azusa, Calif., being said to break the record. It is 1,080 feet long and 42 inches wide. One now being made at the factory will be 1,020 feet wide and 42 inches long. Secretary George Dodge, who had long been in charge of the southwest business, has rejoined his brother, President N. L. Dodge, in San Francisco, his place being taken by William R. Goudie, with offices at 458 South Spring St., Los Angeles.

Firestone Tire & Rubber Co., Akron, O., was represented by F. W. Stavely of the engineering department at the recent session of the Los Angeles section of the Society of Automotive Engineers, the largest meeting ever held by the local chapter, and at which the chief subject discussed was the effect of improper wheel alinement as a cause of premature tire wear. Replying to the contention of one speaker that inadequately inflated tires accounted for more unsatisfactory wear than any other single factor, Mr. Stavely quoted a statement prepared by J. E. Hale, chief of the development department of the Firestone company, that in exhaustive tests made by its engineers tires were properly inflated at all times and yet various kinds of faulty tread wear resulted. It was held by J. S. Bushey, president of the J. S. Bushey Co., that the most effective general preventive of such wear was proper adjustment of camber of the front axle.

General Tire & Rubber Co., Akron, O., has no plans for the establishment of a Pacific Coast factory in the near future, according to company officials, and despite a report that it had decided to set up a big plant soon in San Diego. Heretofore the company has held annual conferences of its sales force in the Pacific territory only in San Francisco, but owing to the rapid growth of business on the Coast three will be held hereafter, and beginning this month, in not only San Francisco but also in Seattle and Los Angeles. President William O'Neil will attend all three meetings. Los Angeles Branch Manager C. E. Criss recently returned from Akron, he having been called East on account of the death of his father.

Fisk Tire Co., Inc., had in 1927 the largest sales in its history in Southern California, according to Los Angeles Branch Manager A. W. Fort, 1328 Santa Fe Ave., and the outlook for 1928 is for a considerable increase over 1927 sales. The coast sales personnel has not been changed in a long time.



The New Firestone Factory Being Erected in Los Angeles, California

Cutler-Hammer Mfg. Co., Milwaukee, Wis., manufacturer of electrical and mechanical devices used in rubber manufacturing, opened Pacific Coast sales offices of their own in January at 970 Folsom St., San Francisco; 229 Boyd St., Los Angeles, and 2303 First Ave., Seattle, the new sales district being in charge of Fred H. Oberschmidt. His headquarters will be in San Francisco, and he will be aided by A. A.

Fred H. Oberschmidt

Tuffert and George P. Stone. Thomas N. Bristow will be in charge at Seattle and Edward G. Nelson at Los Angeles. Arrangements have also been made for quicker shipment of special eastern made C-H. products.

Paragon Rubber Products Co., Huntington Drive, Los Angeles, Calif., has been given a California permit to dispose of 2,000 $25 shares of stock. The concern, which is officered by H. G. Cogswell, R. H. and H. W. Thompson, will manufacture various rubber products under a secret process developed by Mr. Cogswell, who had been at the head of the Paragon Rubber Co. for several years. He receives 377 shares for his invention, and the remainder of the shares will be disposed of privately.

Firestone Pacific Tire & Rubber Co. is making rapid progress, after some unavoidable delay, on its 40-acre Los Angeles plant, and grading and excavating will, it is said, be completed before February 10. Construction will then proceed on the first unit comprising the administration, factory proper, warehouse, shipping, powerhouse, and mechanical or tool buildings. Vice President C. A. Myers, in charge of construction, returned from Akron January 18 and will remain in Los Angeles with his engineering staff until the buildings are ready for production. R. J. Cope, who has charge of the Los Angeles factory branch since the death of Elmer Firestone, has been appointed manager of the new plant and has been succeeded by his assistant G. M. McNeill.

M. C. de Guigne, president of the Stauffer chemical companies of Europe and America, has been making his annual visit to the Stauffer plants in the United States. M. de Guigne is 81, remarkably active, and lives at the Château de Senejac, Blanquefort, Gironde, France.

Pacific Goodrich Rubber Co. executive line-up has been completed, according to Vice President and General Manager S. B. Robertson, effective January 1. F. E. Titus, who had been New York district manager, is now general sales manager for the Los Angeles factory. E. S. Sargeant, former general credit manager at the Goodrich offices, Akron, is secretary-treasurer of the new concern. F. A. Nied, of the Akron

S. B. Robertson

production division, is the new plant superintendent. F. C. Cory, of the engineering costs department at Akron, is the new auditor, and A. D. McPherson, long with the purchasing department in Akron, is the new purchasing agent. Mr. Robertson returned recently from a short stay in Akron and at once proceeded to expedite building operations at the new southwest plant. Excepting the powerhouse, all the big steel structures are up and inclosed and considerable machinery installed. Mr. Robertson is confident that the works will be ready early in March, and as rapidly as possible production will be increased to the planned capacity of 5,000 tires and 7,500 tubes daily.

Goodyear Tire & Rubber Co., Los Angeles, Calif., is averaging well over 8,000 casings and 8,500 tubes daily, and it is stated that the outlook is for a steady and early increase in production. The factory was recently visited by 250 delegates to the convention in Los Angeles of the American Vocational Teachers' Association. Guides were provided to explain all the stages of casing and tube making.

Columbia Tire Corp., Portland, Ore., reports business as excellent. It has a contract to equip all Ford cars assembled on the Coast.

India Tire & Rubber Co., Akron, O., has appointed Winston Wheatley, five years in charge of its San Francisco branch, as manager of its Los Angeles factory branch.

Pioneer Rubber Mills, San Francisco, Calif., had over one hundred guests at its annual Christmas Eve party at the Commercial Club rooms, the participants being chiefly the officials of the company's main office, 345-353 Sacramento St. The guests were welcomed by Vice President D. D. Tripp, who then turned them over to the tender mercies of Vice President H. R. Mansfield, who occasioned much mirth by distributing amusing presents to everyone present. During the luncheon a musical entertainment was given. Arrangements for the pleasant affair were in charge of C. M. Bliven, manager of engineering sales.

Gates to Study South American Conditions

That South America offers an increasingly important market for American manufacturers, is the opinion of Charles C. Gates, president of the Gates Rubber Co., Denver, Colo., who, with Mrs. Gates, sailed on January 14 from New Orleans for a comprehensive survey of the South American continent. He will be absent for several months.

Mr. Gates' tour will combine business with pleasure as he will make a point of calling on the company's customers, in so far as his route will permit, and he will study present commercial conditions in Latin America.

Samson Tire & Rubber Corp.

Samson Tire & Rubber Corp. of Los Angeles did a gross business for 1927 of slightly over $8,000,000, and as of December 31 last had an earned surplus of some $717,000 after all charges and dividends. Indebtedness consists of but $1,000,000 $5 par common and $200,000 of $10 par preferred stocks. Dividends at the rate of 8 per cent per annum are being paid on both issues. Earnings, it is stated by President A. Schleicher, warranted a much higher dividend last year, but it was decided instead to add largely to the reserve surplus account in view of the expansion programme for 1928.

The Samson concern was founded in 1918 by Mr. Schleicher, and this pioneer tire factory in the Southwest manufactured the first cord casing produced west of the Rockies. Ten years ago it had a daily output of fifty tires and fifty tubes, and these were personally delivered by President Schleicher to the express company. In 1927 production averaged 2,500 tires and 6,000 tubes daily. The company's plans call for a daily average in 1928 of 3,500 tires and 8,000 tubes. It has nearly 1,000 operatives and has been working 24 hours daily on three shifts for the past four years. Recently it has developed a large business on the Atlantic Coast. The remarkable growth of the concern has been financed entirely out of earnings.

CAMBER GOING OUT

Some car companies have abandoned wheel camber altogether. It simply came down through the years, because the first makers thought it made steering easier to have the front wheels lean. The time will come when leaning wheels and toe-in will be as scarce as horses and buggies. Every day a knowledge of tire engineering is more and more essential to the tire dealer, and the consumer as well.—General Tire & Rubber Co.

Pacific Coast Section Rubber Division Formed

An enthusiastic response has been made to the recent proposition of the American Chemical Society that an organization be effected in the Southwest, under the auspices of the Rubber Division of the A. C. S., of those who are directly interested in

R. B. Stringfield

the production end of the rubber industry. A large number of chemists, technologists and executives eagerly availed themselves of the invitation to attend a preliminary get-together meeting Friday evening, January 20, at the Mary Louise Restaurant in Los Angeles, issued by R. B. Stringfield, chief chemist at the Goodyear factory, who had been appointed as local group chairman by Dr. Harry L. Fisher of the Rubber Division, A. C. S.

It was explained by the chairman that the object of the meeting was to enable the technical men of the rubber trade in the newly developing rubber center to get better acquainted and to be benefited through the free interchange of views, better conditions under their immediate control as well as help the industry generally. The hope was expressed that a body would be formed which at two or three sessions a year might consider many practical subjects as well as those that were strictly chemical, and that as soon as possible its activities might warrant its extension to the whole Pacific Coast.

After dinner, a tentative form of organization was considered, and an address was given by Herbert A. Endres, research chemist of the Celite Co., of Los Angeles, and who is well known for his contributions to the art and science of rubber compounding. The subject was, "The Crystallization of Sulphur in Rubber and the Phenomenon of Blooming." Interest was heightened with a beautiful collection of stereopticon views.

Forty-five were enrolled for membership in the projected group. R. B. Stringfield was elected temporary president, E. S. Long, secretary, and C. R. Park, E. S. Long, and A. K. Pond were appointed a committee to formulate a plan of organization and to report at an early session to be called by the chairman, Mr. Stringfield.

The Dayton Rubber Mfg. Co., Dayton, O., was visited during the month by J. P. Schiller, Pacific Coast manager, and J. B. Hassett, Los Angeles branch manager. Both men are well known to the trade on the west coast and their appointment last fall has greatly strengthened the western forces of the Dayton company and brought fifty new accounts. Other tire salesmen on the west coast who have recently joined the Dayton company are J. F. Schiller, Allen White and Frank Elmore.

Woodbury & Wheeler Co., 55 Second St., Portland, Ore., has been appointed exclusive distributer for The Manhattan Rubber Mfg. Co., Passaic, N. J., for Portland and adjacent territory. The company carries a complete line of mechanical rubber goods.

Huntington Rubber Mills, Portland, Ore., have just completed a profitable year with business considerably ahead of 1926. Some new lines have been added to operations and the volume of staples, which are rubber heels and soles, has been increased.

Federal Rubber Co.

More than 15,000,000 pounds of rubber and 7,000,000 pounds of fabric were used in the manufacture of tires and kindred products by the Federal Rubber Co., Cudahy, Wis., during 1927. The concern's annual pay roll exceeds $3,000,000 and more than 2,000 are constantly employed at the plant.

The factory is the largest of its kind in Wisconsin and one of the largest in the nation. The Federal is a subsidiary of the Fisk Rubber Company of Massachusetts. Activities of the Federal division are directed by Benjamin H. Pratt, vice president of the Fisk company as well as two Fisk sales organizations, the Federal Rubber Co. and the Badger Rubber Works.

RUBBERIZED COTTON CLOTH WHICH IS poor in quality and produces inferior raincoats will be plainly stamped "second" by all members of the Proofers' Division of the Rubber Association of America.

Midwest

Sidney M. Schott, secretary of the tire development department at the Detroit, Mich., plant of the United States Rubber Co., has severed his connection with the company. Mr. Schott had been with United States for the past fifteen years in various capacities.

The Milwaukee Rubber Products Co. bought the Martin Tire & Rubber Co. and will begin operations at the plant at 4401 State St., Milwaukee, Wis., which comprises about 30,000 square feet and has a capacity for 400 tires daily. The Milwaukee company is a new corporation, capitalized at $100,000, which will market a solid industrial truck tire for trailers and air cushion tires for light delivery wagons.

The Firestone Tire & Rubber Co., Cudahy, Wis., has leased a storage plant from the Cudahy Brothers Co. The lease involves a total rental of about $100,000 and is for 10 years. The Firestone company will use it as a storage place for tires and also as the company's Milwaukee office. The building will be remodeled at a cost of about $25,000. Stanley C. Schultz, Chicago, represented the Firestone company in the deal.

The Ajax Rubber Co., Racine, Wis., under its new management will undertake its first step in an expansion program with the enlargement of its plant. A party of eastern officials has just visited the company's Racine factories to map out plans for increasing their capacity and effecting economies in operation. The new management, headed by H. L. McClaren, took hold of the company following the consolidation of the Ajax and McClaren rubber companies.

The Western Rubber Products Co. was recently incorporated and has taken over the assets of the Oralastic Rubber Products Co., 4-5 Barker Bldg., Kansas City, Kan. Rubber flooring, tiling, paving, expansion joints and roofing will be manufactured by the new company. Charles Ora is general manager.

W. G. Lindsey, manufacturers' agent representing the Essex Rubber Co., has moved from the Dime Bank Bldg., to 7-253 General Motors Bldg., Detroit.

I. A. Helmo, Mercury and Montana Sts., Butte, Montana, has taken over the sales and service of United States tires, and is located in a new shop in which has been installed modern equipment necessary for high grade repair work.

Branick Vulcanizing Co., Fargo, N. D., manufactures an instantaneous air pressure tire spreader and adjustable bead tool, selling to and through jobbers.

T. W. Morris, 6312 Winthrop Ave., Chicago, Ill., recently spent two weeks in Akron calling on the trade. Mr. Morris is a manufacturer of automatic trimming machines for rubber goods.

J. C. Weston has opened offices in the General Motors Bldg., Detroit, Mich., and plans to establish direct contact for service to automobile manufacturers in connection with Ajax tires and Salts automobile fabrics. Until its recent consolidation, Mr. Weston was president of the Ajax Rubber Co., Inc., and remains the chairman of the board of directors.

L. J. McKenney, for many years connected with The Manhattan Rubber Mfg. Co., Detroit, Mich., for the last nine years as Detroit manager, has resigned. Chris Brockius will serve as acting manager for the present.

The Michigan Rubber Co., Owosso, Mich., has purchased the plant of the Zimmerman Mfg. Co., which will be remodeled and equipped as a factory for the manufacture of hard rubber goods. Plans call for the opening of the plant during February. The Michigan company was recently formed with a capital of $200,000 with H. M. Shepherd, president, and W. Ellison Lynch, secretary-treasurer.

The University of Michigan is offering graduate courses in general chemical engineering, metallurgical engineering, gas engineering and organic chemical industries. Unusual facilities are offered for advanced laboratory work, and several industrial fellowships will be available for graduate students next year.

California Division of Goodyear Tire & Rubber Co., at a Recent Sales Conference in Akron, Ohio

From left to right: R. H. Daniels, manager, San Francisco; J. W. Mapel, president of Goodyear, California; J. K. Hough, sales manager of Goodyear,. California; A. L. Dubroy, manager mechanical goods sales for California and first manager of California factory; C. C. Slusser, vice president and factory manager, The Goodyear Tire & Rubber Co.; C. S. Bonner, manager, Butte; E. C. Newbauer, manager, Sacramento; R. P. Morgan, manager, Seattle; R. A. Mehrtens, assistant manager, San Francisco; P. K. Coe, manager truck and bus tire sales, California division; D. W. Sanford, manager, Portland; H. A. Price, manager, Los Angeles; W. H. Vining, manager, Denver; C. A. Brown, manager, El Paso; H. S. Quackenbush, manager new Southern California branch; J. X. Kennelly, manager of the California advertising department; W. T. Sebelle, California sales manager's office; R. E. Jeffers, assistant manager, Los Angeles; P. W. Senour, manager, Fresno; M. L. Henderson, manager, Spokane.

Canada

December was a fairly good month for overshoes and rubbers though not equal to December of last year. Snow, rain and slush are necessary for a good mid-winter trade in rubber footwear, but these weather conditions were lacking in the same period of 1927.

With the large number of second hand motor cars on the market this year, retailers of tires are looking forward to a large business in tires and tubes as it is generally conceded that used cars will sell at comparatively low prices which will enable the average buyer to purchase a new set of tires with a spare.

Rubber Imports. Crude rubber to the value of $1,565,130 was imported into Canada during November, 1927, as compared with $1,476,512 in November of last year. From the United States came $1,434,574, while direct from the British Straits Settlements came $108,895. The total value of raw rubber imported for the twelve months period ended November 30 was $22,428,125 compared with $27,706,685 in the corresponding period of 1926.

Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario, plans to erect another large addition to the tire plant at New Toronto. This extension is 20 by 100 feet and comprises four stories and basement. This increase of 69,200 square feet will make a total floor space of 702,284 square feet, or 16⅛ acres—a young farm. At the present time the company is turning out 7,800 tires and 8,300 tubes daily at the New Toronto plant.

Research Council of Canada is in hopes that the federal government will make an initial appropriation in the estimates of the coming session for the establishment in Ottawa, Ontario, of a central laboratory for scientific and industrial research.

Canadian Rubber Shipments. Rubber goods are now being shipped to some sixty other countries. In the twelve months ended with November 1,686,858 pneumatic casings, valued at more than $17,000,000, were shipped abroad, an increase of nearly $3,000,000 over last year. In addition to that, inner tubes valued at more than $3,000,000 were exported, an increase of $600,000 over last year. Other rubber products exported included rubber boots and shoes, $1,810,568; rubber belting, $489,867; canvas shoes with rubber soles, $3,851,854.

W. G. Steward has joined the staff of the Seiberling Rubber Co. of Canada Ltd., Toronto, where he will take charge of sales promotion and dealer advertising. Mr. Steward was formerly the advertising manager of Goodyear in Toronto.

C. N. Larsen, formerly of the Winnipeg, Manitoba, branch of the Gutta Percha & Rubber, Ltd., has taken up his new duties in Toronto as general sales manager. R. A. McLellan, his former assistant, has been promoted to branch manager at Winnipeg, Manitoba.

Ames Holden, McCready Rubber Co., Ltd., states that various improvements have been made to the Toronto, Ontario, sample room; and the facilities now afforded for display purposes are particularly attractive.

Miner Rubber Co., Ltd., Granby, Quebec, reports that a steadily expanding business has necessitated considerable extensions to the plant at Granby, Quebec. A substantial addition to the factory buildings is under way and the plans include larger accommodations in both warehouse and office. This Canadian company was established twenty years ago by the late S. H. C. Miner with a factory staff of 150 which now numbers 1,200 factory employes alone. W. H. Miner, the president, is well known in the industrial and financial world of the Dominion.

Francis E. Lloyd, Macdonald professor of botany and director of the Biological Bldg. at McGill University, Montreal, has left for Mexico where he will investigate a problem in connection with the guayule rubber plant. Prof. Lloyd represented McGill University at the annual meeting of the American Association of Science in Tennessee, where he was elected honorary life member of the American Society of Plant Physiologists.

Northern Rubber Co., Toronto, Ontario, anticipates a particularly good season in the Court Special shoe and is carrying large stocks to meet the current demands. This shoe is particularly adapted for Badminton and sales have increased considerably.

North British Rubber Co., Ltd., Toronto, Ontario, through E. L. Kingsley, manager, is of the opinion that prosperity will face us at every tick of the clock during 1928 provided we keep the clock (our business) wound up.

J. E. Jones, sales manager of the mechanical division, Dunlop Tire & Rubber Goods Co., Ltd., prophesies increased sales in all lines of golf supplies for 1928 and believes it will be the brightest year in its history pertaining to golf.

Panther Rubber Co., Ltd., plans to build a $20,000 addition to its factory at Sherbrooke, Quebec, and has already begun excavation work.

A. D. Thornton, a director of the Dominion Rubber Co., Ltd., and a past president of the Rotary Club of Montreal, was recently elected a trustee of the Westmount Public Library.

Ralph W. Ashcroft, well known in the Canadian rubber industry, is taking an active part in the installation by his firm, Gooderham & Worts, Ltd., of the most powerful radio broadcasting stations in Canada which is to be located in Toronto.

H. Ralph Leary has been made general superintendent of the Quebec Rubber Co., Ltd., Quebec. Mr. Leary has been connected with the rubber industry for sixteen years and the good wishes of his many friends follow him in his new position.

SUPERHIGHWAY PROJECT

The proposed Avondale superhighway, which is shortly to go before the Chicago city council for reference to the board of local improvements, was originated by Benjamin B. Felix, president of the Featheredge Rubber Co., Inc., 340 West Huron St., Chicago, Ill. Worldwide attention is centered on the plan which is one of the boldest conceptions of traffic and general urban improvement ever offered.

WEFTLESS CORD FABRIC FOR TIRES

The B. F. Goodrich Co., Akron, O., now is using weftless cord fabric in the manufacture of Silvertown cord balloon tires to insure uniform mileage and a larger run of dependable performance. The cords are impregnated with rubber and made into sheet form over special rolls. The weftless process gives each cord more uniform elasticity, absolute uniformity of rubber coating around each cord and an elimination of the sawing action caused by cross threads. Approximately 165 staple cotton fibers are twisted together to form a single yarn. Five of these are twisted together to form a thread. Three of the threads are twisted together to form a cord. The tensile strength of the cords is 17.5 pounds.

INTERNATIONAL ACCEPTANCE BANK

A greater volume of business during 1927 than in any previous year since its establishment in 1921 was transacted by the International Acceptance Bank, Inc. The directors increased the annual dividend rate on the common stock from $4 to $6 per share by declaring a regular quarterly dividend of $1.50 per share, payable January 15, 1928, to stockholders of record January 5, 1928. This is at the rate of 12 per cent per annum on the paid-in capital. Previous dividends were paid at the rate of $1 per share quarterly, or 8 per cent annually on the stock outstanding.

BIDS ON ARMY HIP BOOTS

Bids for supplying 700 pairs of rubber hip boots, all according to specification, were opened January 13 at the Army quartermaster depot in Philadelphia, Pa.

The B. F. Goodrich Rubber Co., Akron, O., bid $3.75 each, delivery complete in 30 days, terms net; United States Rubber Co., New York, $4.75 each, delivery complete in 50 days, terms net; Converse Rubber Shoe Co., Malden, Mass., $3.80 each, delivery beginning February 11, complete by March 3, terms net, acceptance 10 days.

The award was made to The B. F. Goodrich Co.

The Rubber Industry in Europe

Great Britain

For some time past the pros and cons, but chiefly the pros, of amalgamation, have been aired at company meetings. The strong plea only recently put forward by James Fairbairn, chairman of the Amalgamated Rubber & General Estates, for the consolidation of smaller estates, will be fresh in the memory of most rubber men. And now comes the news that the two concerns of which he is chairman, the above named company and the Amalgamated Rubber Development Co., Sumatra, have been merged in the United Serdang (Sumatra) Rubber Plantations, a Harrisons & Crosfield enterprise. The latter concern will increase its share capital from £1,000,000 to £1,500,000, in 2s shares. The terms of the fusion are: one United Serdang share for every two shares held in the Amalgamated Rubber & General Estates; one share for every two shares held in Amalgamated Rubber Development; four United Serdang shares for every £1 of convertible debenture stock of Amalgamated Rubber General Estates.

Strength of the Merger

By the merger, one of the largest rubber companies will be formed as the consolidation will own properties covering a total area of 65,892 acres. Of this, the area planted with rubber comes to 30,545 acres; in addition, 1,000 acres are under coffee and 7,000 acres under gambier and oil palms, bringing the total planted area to about 38,700 acres. On a total issued capital of £1,423,273, the capitalization per planted acre works out at less than £37. Total reserve lands come to over 27,000 acres, of which the Amalgamated has 22,950 acres, half being considered suitable for rubber. Since the United Serdang has large areas of mature rubber and the Amalgamated has a large area of young rubber coming into bearing, the two concerns balance each other.

The Amalgamated has a good record, and turned out dividends averaging 13½ per cent during the last three years; United Serdang distributed about double this rate. Mr. Fairbairn will become vice chairman of the new concern, and C. N. Radcliffe, also of the Amalgamated, will be associated with him.

Necessity for Fusions

In discussing the advantages of the fusion, Eric Miller, chairman of United Serdang, pointed out that since, on the one hand, there was a comparatively small number of enormously powerful concerns manufacturing rubber, and on the other a very large number of relatively small companies producing rubber, in the financial and economic interests of the latter, the welding of rubber growing enterprises into more powerful units was practically a necessity. The force of Mr. Miller's statement is better understood when we consider that of the 600 odd rubber-producing companies considerably less than half have issued capitals of more than £100,000, while the number of million-pound concerns does not reach double figures.

Purpose of Restriction

Forced restriction, of course, was hastily adopted as a last resort when the full extent of the menace that the weaker concerns constituted during the slump became apparent, and it was recognized that unless some speedy action was taken to force up prices and bolster up the industry, American capitalists would snap up the estates of the many tottering concerns at bargain prices and thus threaten British prestige in the rubber producing industry.

During the five years of restriction, firms have had a chance to recuperate financially and to improve their estates, and the position of those originally strong is now of course stronger than ever. Naturally, now when the danger of Americans buying cheaply numbers of hard pressed smaller estates is no longer near, the strong firms refuse to be penalized for the sake of their weaker brethren.

However, they are fully alive to the potential menace of large numbers of small, weak holders, hence the widespread interest in amalgamation. In view of all this, therefore, it does not seem illogical to conclude that after several more large scale amalgamations have taken place, restriction, having served its purpose, will be discarded to make place for some more efficient method of controlling production and price of crude rubber.

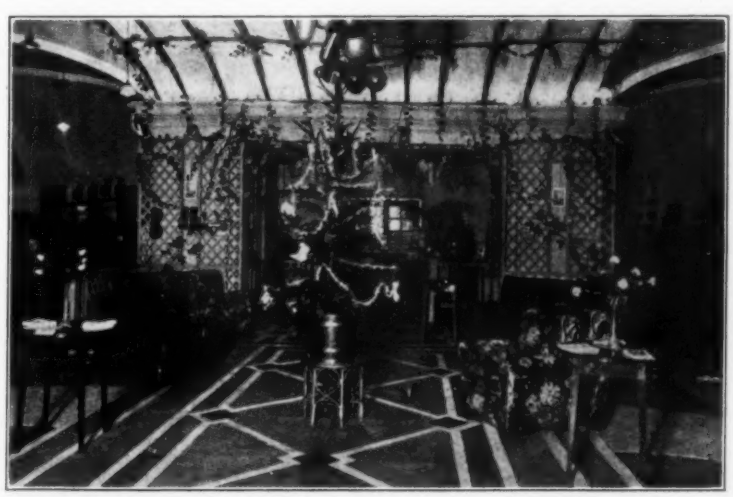
Rubberware Exhibition

The one-day exhibition of rubber goods organized by the Institute of the Rubber Industry, and held at Westminster on December 14, was an informal and highly successful affair. The opening ceremony was performed by Lord Colwyn, from the association's stand, which on this occasion was a lounge completely fitted with rubber. Here one was able to see rubber crazy paving, rubber flooring, "Newmatik" cushions and the latest types of sponge rubber upholstery, rubber topped tables, rubber mats, rubber bowls and rubber flowers, including that latest development —rubber holly. Useful gifts in rubber were concealed at various points on the stand, in the center of which stood a Christmas tree loaded with a delightful selection of rubber toys.

Color was the key-note of most stands, so in the case of J. G. Franklin & Sons, Ltd., who showed a variety of crepe-rubber bathing shoes, some in colors with a new embossed finish. They also had on view the "Anclo" ladies' back spat, made of pure rubber and almost invisible when fitted over the silk stockings they are meant to protect.

The "Leypile" doormat, a Leyland product, has rubber piles, as its name implies, and is supplied in orange, black, grey, green, blue, primrose, rose and white. A name or slogan can be inserted if desired.

The luster-finish articles of the Reliance Rubber Co., particularly those in which



Builetin R. G. A

Rubber Growers Exhibit at Rubberware Exhibition

the gold and silver is blended with green, pink, yellow, etc., attracted a great deal of attention.

Fielding & Co., had on view their popular "Newmatik" mattresses and cushions stuffed with sponge rubber cuttings, besides a specialty known as "Tengo" having a rubber latex base and used on the underside of mats to prevent them from slipping.

Imitation biscuits and rolls of butter which squeak when pressed, probably of foreign manufacture, drew many to the stand of Pure Plantation Rubber Products, Ltd.

Rubber Wellingtons for children, shown by the North British Rubber Co., have extensions over the knee. While among the Avon India Rubber Co.'s exhibits were to be noted exceedingly attractive colored rubber bowls for bulb-growing, etc.

India Tire & Rubber Co. of Great Britain

The India Tire & Rubber Co. of Great Britain, Ltd., has been registered with a capital of £150,000 divided into 125,000 7½ per cent cumulative participating preference shares of £1 each, and 500,000 deferred shares of 1s each. The company has purchased 65 acres of freehold land at Inchinnan Renfrew, Scotland, on which there is a government-built factory. The firm will manufacture and sell in the British Empire (except Canada), under license from the India Tire & Rubber Co., Akron, O., India tires, tubes and all products similar to those produced by the American firm. Although India tires were first introduced into Great Britain in 1926, sales here for the last twelve months totaled over £125,000. It is estimated that on this basis, profits for the new concern's first year should not be less than £30,000.

British Notes

The Rubber Industry Bill, by which it was intended to raise funds for the purpose of putting the Research Association of British Rubber & Tire Mgrs., on a sound financial basis, was rejected at the present Session of Parliament. It will, however, be reintroduced during the forthcoming session, commencing in February.

The Order in Council requiring all imported tires and tubes and wrappings to bear indications of origin when sold, exposed for sale and at the time of their entry into the United Kingdom, has now been made and will come into force on June 20, 1928.

Hymans, Kraay & Co. have moved their offices to 7, Mincing Lane, London, E. C. 3, England.

Walter Landells has withdrawn from the firm of Zorn & Leigh-Hunt, British rubber brokers. The remaining partners, D. F. L. Zorn and Reginald W. Jones will carry on the business.

Germany

Much satisfaction is felt among German dealers of technical goods at the decision of the Richard Klinger, A. G., Berlin-Tempelhof, German subsidiary of the parent organization of the Richard Klinger A. G., Gumpoldskirchen near Vienna, to make serious efforts towards putting an end to the underselling of Klingerit packing. The original Viennese firm had created a price cartel in 1903 to fix the price of Klingerit packing, and until the outbreak of the war, the German branch adhered to this too. Now again, after a good deal of negotiation, it has finally been decided to renew the price cartel as from January 1, 1928. Dealers are obliged to keep to a fixed minimum price to consumers. Those who do not agree to do so will not be supplied with the Klinger manufactures. In case of offenses against the provisions of the agreement, dealers will lose their sales bonus and will not be supplied during the current year. Repeated offenses will be punished by permanent refusal to supply offending dealers.

While on the subject of packing, it may be noted that manufacturers of so-called It-packing, of rubber and asbestos, belonging to the Association of the German Rubber Industry and the Society of the German Asbestos Industry, have come to an agreement with manufacturers of these goods not belonging to the above organizations to raise the price of sheets of It-packing 10 to 15 per cent, and about 20 per cent in the case of rings and shaped parts of It-packing. The increases have been necessitated by the unusually high prices for crude asbestos now ruling and are effective as from December 21, 1927.

Synthetic Flurry

A lot of excitement and unnecessary confusion was caused here in scientific circles in connection with certain statements made in regard to the work of the I. G. dyestuffs firm in the domain of synthetic rubber. Not only trade papers but leading dailies devoted a lot of space to the matter, and in most cases an optimistic tone was adopted. More or less vague rumors had been circulating for some time and it is regrettable that the I. G. firm saw fit to reply to inquiries regarding the problem in a manner calculated rather to deepen than to clear up the mystery. Now, however, it has come out with the announcement that progress has continued in connection with rubber research, but that there is no prospect of an early solution of the problem. Which may be read as meaning that plantation rubber may breathe freely yet awhile. Nevertheless, it would be making a mistake to overlook the fact that the above firm has been spending a great deal of money on researches in the field of synthetic rubber and is planning to spend a good deal more.

German Notes

An insulating material conference was held in Berlin on November 3, 1927 when several papers on the various types of insulations were read, among which were "Technics of Insulating materials," by C. J. Meyer; "Insulations for Installations," E. Grunwald; "Insulations for Measuring Instruments," A. Palm; and "Insulating Materials in Telephony," H. Gorsdorf.

The Pepege Deutsche Gummi-schuh-Verkaufsgesellschaft, G. m. b. H., Berlin, which sells the products of the Pepege Polnische Gummi-Industrie A. G., Graudenz, is putting on the market a new brown athletic shoe with molded rubber sole, besides a white canvas shoe with crepe sole, white shoe with gray rubber sole and a ladies' shoe with rubber heel. The factory in question has been considerably enlarged, employing 2,500 persons, so that production on a large scale is now possible.

The Fit-Geselleschaft m. b. H., Frankfurt a.M., has been formed to handle the products of the French Societe des Procedes Fit, Grenoble, in Germany. The Fit concern exploits a well-known process of retreading.

The Deutsche Kautschuk Gesellschaft is forming another new district association. This time it is a Rhine-Westphalian branch which is to be founded at Duisburg on January 14, when a founders' meeting will be held.

A. G. Metzeler & Co., Munich, reports a loss of 767,572 marks over the business year 1926-1927. The year before the loss was 418,214 marks, but was partly covered by the reserves of 219,971 marks, leaving 198,248 marks to be carried forward. The total loss to be carried forward now therefore is 965,815 marks. It was also decided to bring the capital down to 1,500,000 marks and to increase it again to 3,000,000 marks.

L. Osbahr, general director of the New York Hamburger Gummi-waaren Compagnie, Hamburg, will celebrate the fiftieth year of his connection with the above firm on January 2, 1928. He joined the concern on January 2, 1878, at the age of 28, and in connection with his activities in the firm's behalf traveled extensively, also visiting the United States. It was mainly through his efforts that his concern was able not only to take up its position that it lost during the war when it was forced to close down, but to expand beyond it so that at present more than 1,000 persons are employed in works and offices.

Belgium

Societe Anonyme Bunge, Antwerp, announces that Willy Friling has been elected president of the concern. As is known this function was formerly filled by the late Edouard Bunge, a notice of whose death appeared last month. Monsieur Clement Swolfs will be vice president. Other officers include Victor De Vandeleer, Milton M. Brown-Bunge, Louis Janssens and Marcel Berre.

The Rubber Industry in the Far East

Malaya

Not since restriction was first introduced has it received such vigorous and straightforward treatment as it did from H. B. Egmont-Hake at a recent meeting of the Federal Council. The speech was calculated to give heart to wabbly restrictionists and may do so as it happens to come at a time when there is a revival of optimism, due of course to the rise in the price of rubber. The gist of the whole speech was that Malaya must make up her mind that restriction is a good and wise solution of the rubber problem and give it wholehearted support, that the measure should be kept on the statute books permanently, being automatically suspended when prices warranted this, that better cooperation must be had from Ceylon and finally that the securing of a Dutch alliance must be pursued with all reasonable vigor.

In the course of his exposition, Mr. Egmont-Hake considered three possible methods of dealing with periodic overproduction: The policy of survival of the fittest could be pursued; the industry could form an organization to regulate production without government intervention, and finally, of course, there was the restriction scheme.

With regard to the first method, he showed that shake-outs are only temporary in effect and menace the fit, that it takes six to seven years to grow new rubber to replace that shaken-out, if it did stay out permanently and finally that it would probably be the good, but young estate of, say, six years, which, not yet having reached the stage where it could produce at a sufficiently low cost, would go to the wall, while a poor estate twice as old, would stand a better chance of pulling through.

As to the second alternative, without government aid the small holders could not be brought in and without the cooperation of these small holders who produce almost one-third of Malaya's rubber output, any restrictive scheme was bound to fail, which leaves the Stevenson scheme, backed by the government as the only, and, as Mr. Egmont-Hake is at pains to explain, wisest alternative to be followed by producers.

Rubber Production for 1928

In a circular dated November 20, 1926, E. A. Barbour, Ltd., had predicted a considerable increase in world stocks of rubber by the end of 1927 and on this calculation had based the conclusion that rubber during the year would experience a sharp drop, staying well below the pivotal price. At the time this circular was issued, it was criticized and ridiculed, as a general feeling of optimism prevailed. But events of 1927 prove that this view was the correct one.

The firm in question has just circulated an estimate of the world's rubber position for the present restriction year which cannot fail to appeal to producers, as it is figured out that stocks will be reduced by 100,000 tons during the current year while in addition a repetition of the boom of 1925 is confidently expected to take place during the year 1928.

The deductions are based on the assumption: That reassessment of estates in Malaya will result in a very drastic reduction in standard productions for the year, at a conservative estimate, 40,000 tons; that there will be complete cessation of smuggling, whereby imports of Dutch native rubber will show a reduction of 25,000 tons on 1927 figures; that total production will be only 530,000 tons (only 60 per cent export allowance is figured on for the restriction year) against total consumption of 630,000 tons, whereof America's share is put at 420,000 tons. Estimated stocks are put at 166,000 tons at the end of 1927, which, added to the production figures, gives the total amount of rubber available for 1928 as 696,000 tons against consumption of 630,000 tons. The surplus at the end of 1928, therefore, would be 66,000 tons, or 100,000 tons less than at the end of 1927.

New Restriction Rules Opposed

Now that people have had a chance to study the new restrictions rules and are beginning to feel the effects as applied to their assessments, frequent protests against the rules are voiced on all sides. It seems that what people had expected was a further cut in restriction allowances, to 50 per cent for instance. They had not bargained for reassessments that would cut their standards by anything up to 30 per cent. The average reduction is said to work out at 15 per cent. While numbers of people complained before the end of the past restriction year that there was gross over assessment, it now develops that they did not mean their estates were over-assessed, but the others; in fact, some claim that European estates were under assessed rather than the reverse and only Asiatic owned estates had allowances in excess of what they could produce. Naturally, such being the case, it is no surprise to learn that many planters are overhauling their records to support their appeals against the reductions, while many have done so already, and, judging from the volume of the protests, most of these are occupying the interim by more or less vociferously denouncing the unfairness of the new provisions.

Planters' Associations Protest

An illustration of the feeling prevailing is offered by a resolution passed at a recent special meeting of the Central Perak Planters' Association to the effect that the Planters' Association of Malaya, should firmly dissociate itself from the application of the new rules on the score that the industry had not been consulted. It was also decided to question the representative character of the central restriction committee.

Later reports show that these recommendations were duly discussed by the Planters' Association of Malaya. Two amendments were proposed, the first stating that, while the need for further restriction was recognized, the Planters' Association of Malaya regretted that the authorities had not been able to secure a release of 50 per cent under the Stevenson Scheme and that it had become necessary to substitute a scheme not considered equally equitable; the second, that the meeting considered the interests of the industry would best be served by acquainting the Rubber Growers' Association with the points arising from the discussions.

It was also decided to circularize members of the Planters' Association of Malaya requesting them to vote on this important question.

Menace of Dutch Native Rubber

Every now and then Sir Frank Swettenham makes some statement or other calculated to disturb the equanimity of the rubber growers. Some time ago he warned against the tendency to invest restriction profits in new plantings. Now he surveys with alarm the growing menace of the native rubber growers in the Dutch East Indies.

In his opinion the fact that the Dutch refuse to cooperate with the British is not nearly so serious as that in the Netherlands East Indies with a population of 60,000,000 natives, a dangerous competition is growing up against European rubber planters of all nationalities.

He pointed out to what an extent a European planter was handicapped when he had to face a competitor who had no capital involved, no overhead, no machinery, no sanitary expenses and who in addition could let his trees rest and turn to some other occupation when rubber was low in price.

"If the native producers in British Malaya" he added, "are today responsible for one-third of the total production of Malaya, the possibilities before the 60,000,000 natives of Netherlands India must give cause for rather furious thinking."

Without intending to minimize the danger, it may be pointed out that about two-thirds of the native population in the Dutch colonies is concentrated in Java where, too, there is no native rubber planting worth mentioning.

Netherlands East Indies

In a recent issue of the *Archief voor de Rubberculture*. Blommendaal and van Harpen discuss latex as a marketable product. They give a review of the chief methods of concentrating latex, mentioning five, three of which have as yet found no practical application. Of the remaining two, the best known is, of course, the Revertex process; the other, Utermark's process, has up to the present not made a great deal of headway, but the writers find that the ultimate product possesses certain advantages which will eventually make it gain favor.

Utermark Process

By the Utermark process the cream is mechanically separated from the latex by centrifugal separators. In this way a top latex containing 60 per cent of rubber is obtained. The rubber is of extremely fine white color and contains a minimum of non-rubber constituents, that is, albumen and serum substances. This circumstance also renders the rubber non-hygroscopic which, it is pointed out, is an advantage for electrical purposes and for the making of articles by the cold-cure method. The absence of the non-rubber constituents, it is thought, would probably result in the quality of rubber obtained in the above way being unusually uniform, much more uniform than rubber from the Revertex process, for instance. Indeed, it is expected that the product from the latter process, by which the non-rubber constituents are retained, will be less uniform even than the usual type of crepe and sheet. Finally, the Utermark concentrated latex, even though it has a rubber content of 60 to 70 per cent, can easily be pumped, which is an advantage when shipping in bulk that evaporated latex does not seem to have.

Future of Latex

The writers think that while it would be premature to say that latex will in the future be a prime favorite, it is to be expected that it will play an important part, particularly as scientific research in this field has been taken up from so many sides of late.

There is another aspect of the matter which the writers touch upon. They seem to think that a growing use of concentrated latex will put in the hands of producers an effective weapon against native rubber. This does not necessarily follow. Rather, one would expect a kind of division of labor in the producing of rubber by which the natives would produce the latex and bring it to the concentrating plants to be further treated. In this connection it may be pointed out that the Wilkinson Process Co. in Malaya finds it advantageous to buy up from Malay producers practically all the rubber they require for their plant.

Milling Native Rubber

A special report regarding the remilling of native rubber in the Netherlands East Indies, which has just come to hand, throws an illuminating light on the difference in Oriental and Occidental methods of dealing and incidentally show why so many European enterprises when pitted against those of Asiatics, chiefly the Chinese, fail even when government assists by special legislation.

To begin with there are now four rubber mills operating near Palembang, Sumatra, the most important being those of the Rubber Unie and the Internationale Crediet en Handelsvereeniging Rotterdam. And these mills are meeting with many difficulties, the most important of which is the adulteration of the native rubber. Dirt, stones, waste, cotton rags, sand and other rubbish are purposely mixed in the latex by the natives. This adulteration makes it difficult to buy intelligently, results in waste, as the rubber is sometimes so mingled with dirt as to be useless; the machinery is damaged by the grit that gets into the bearings, and there is always danger of mill operatives being injured by stones flying back from the rollers.

These difficulties, of course, have also been and are naturally still being faced by the Chinese remillers. But they do not mind all this bother. As a matter of fact it is claimed that it is due to their encouragement that natives resort to adulteration as they figure they can buy more cheaply by claiming that there is more rubbish present than is actually the case. But the Dutch would rather not have the trouble caused by the impurities and are appealing to the government to take steps to curb adulteration.

Officials of the Rubber Unie state that when the latex is properly treated, native rubber is frequently of very high quality. This is a statement that suggests another reason why Chinese have encouraged the incorporation of filth in native rubber. Possibly it occurred to them that if the natives got into the habit of producing clean, high grade rubber whose only defect was its appearance and perhaps a too high percentage of moisture, it would require very little to make them realize that by giving just a little more care to the finish of their product, there would be no need for remilling and they could secure a much better price for their rubber. Then the Chinese would have to close their factories and a good source of income would be lost. So that by insisting on clean rubber, the Dutch may not be acting in their own interests after all.

As a result, the Rubber Unie finds great difficulty in getting enough rubber even to turn out four tons of dry rubber a day, whereas it is known that one of the biggest Chinese mills in Singapore turns out about three hundred tons of dry rubber per month, and apparently has no trouble in getting the raw material for it.

Ceylon

The remarkable development of the rubber plantation industry after 1900 is a never-failing source of interest and wonder, and references to the early days of the industry, especially when supported by figures, are always welcome.

At present there is a special commission in Ceylon investigating conditions here and in a memorandum submitted by the Ceylon Planters' Association, is this paragraph:

"In its initial stages, rubber did not attract much planting interest, and it was not till about 1890 that appreciable figures of export are recorded. In that year (1890) the value of Ceylon rubber exported amounted to 1,067 rupees, and fluctuated slightly up to 1895, in which year the figure was 1,290 rupees. By 1900 the figures had reached 12,883 rupees, and in 1926 the value was 170,078,219 rupees."

Active interest in the crop was therefore not shown until after 1900, and figures of the plantation industry usually do not go back farther than 1904, facts which bring home forcibly to us the reminder that the planting is a very young undertaking.

Incidentally, while we all have learned that native cultivation in the Dutch colonies is of the greatest importance, and smuggling in Malaya has called attention to the fact that one-third of the rubber in that colony is Asiatic-owned, it is not generally known that there are a very large number of native producers in Ceylon. For the most part the holdings of these people are very small, averaging only about two acres, which seems insignificant enough, but the matter assumes an entirely different aspect when we know that in 1923 there were 22,000 small-holders, 33,000 in 1926, while it is estimated that by the end of 1927 the number will probably be nearly 40,000.

Uncouponed Rubber

The governor has approved a new rule under the provisions of the Rubber Restriction Ordinance, 1922, making it illegal to purchase or sell rubber without coupons, after December 23, 1927.

This is an important measure which should help to tighten restriction here. It may be remembered that formerly over assessed estates (and there were many such) sold their surplus coupons either direct to estates that could produce more than their quota or to dealers who bought the excess rubber from more-productive estates, thus nullifying the effects of restriction.

That in spite of this traffic in coupons, Ceylon still had outstanding at the end of the restriction year (October 31, 1927), unused coupons representing 7,558 tons, is a thought-provoking commentary on the working of restriction in this island.

Rubber Patents, Trade Marks and Designs

United States

December 13, 1927*

1,652,197 COMBINATION ABDOMINAL SUPPORT AND BRASSIÈRE. Harry Frieland, Newark, N. J., assignor to Vogue Brassière Mfg. Co., a corporation of N. J.

1,652,237 TANK BALL. A. H. Canfield, Bridgeport, Conn.

1,652,269 PROTECTIVE ENVELOPE FOR GARMENTS. M. D. K. Bremner, Chicago, Ill.

1,652,288 FOOTBALL HELMET. R. T. Mullins, Brooklyn, assignor to A. G. Spalding & Bros., New York, both in N. Y.

1,652,307 BOOT SOLE. J. B. Hines, Guelph, Ontario, Canada.

1,652,442 COMBINED EMERGENCY TIRE AND TOW LINE. S. G. Jensen, Green River, Wyo.

1,652,457 WATER BAG CLOSURE. M. B. Reach, assignor to Stopperless Water Bottle Co., both of Springfield, Mass.

1,652,488 SUCTION FASTENING DEVICE. E. O. Lundblad, Medford, Mass.

1,652,511 COMPOSITE VEHICLE WHEEL. H. N. Atwood, Monson, Mass.

1,652,670 PNEUMATIC TIRE CASING. Ernest Hopkinson and J. P. Coe, New York, N. Y.; said Coe assignor of his right to Morgan & Wright, a corporation of Michigan.

1,652,733 ELECTRICAL TIRE PRESSURE INDICATOR. V. E. Rouch and W. J. Abbott, Fulton, Ind.

1,652,776 MINER'S CAP. E. N. Galanis, New York, N. Y.

1,652,777 SLEEPING EYE FOR RUBBER DOLLS. August Geisler, Limburg-on-the-Lahn, Germany, assignor to Arranbee Doll Co.

December 20, 1927*

1,653,054 SECURING MEANS FOR PNEUMATIC TIRES. H. P. Mack, Salt Lake City, Utah.

1,653,059 SHOE TREAD. N. H. Nelson, Minneapolis, Minn.

1,653,162 PNEUMATIC TIRE PATCH. Charles Forman, Taft, Calif.

1,653,331 VEHICLE WHEEL. H. N. Atwood, Monson, Mass.

1,653,348 VEHICLE WHEEL. G. E. Dudley, Roseville, Calif.

1,653,388 TIRE BOOT. G. A. Burrow, Spokane, Wash.

December 27, 1927*

1,653,705 BATHING SHOE. B. L. Henry, assignor to I. B. Kleinert Rubber Co., both of New York, N. Y.

1,653,989 REPAIR PATCH. A. H. Cooper, Atlanta, Ga.

1,654,019 CUSHION TIRE. A. W. Schmidt, Lewiston, Idaho.

1,654,267 COMBINED STOPPER AND BULB SYRINGE. H. K. Mulford, assignor to National Drug Co., both of Philadelphia, Pa.

1,654,367 VEHICLE WHEEL. Alfred Freund, St. Louis, Mo.

1,654,380 MEANS FOR SECURING TIRES ON RIMS. A. J. Michelin, Paris, assignor to Michelin et Cie., Clermont-Ferrand, both in France.

January 3, 1928*

1,654,565 CUSHION TIRE. J. H. Wagenhorst, Jackson, Mich.

1,654,567 VEHICLE TIRE. J. J. Wolfrom, Flint, Mich.

1,654,572 PNEUMATIC BUMPER. B. V. Bayne, San Diego, Calif.

1,654,847 TOY GUN WITH ELASTIC BAND. Fred Urbuteit, Sulphur Springs, Fla.

1,655,001 TIRE PATCH. M. J. Wilcox, Portland, Ore.

1,655,104 BRIDGE WASHER AND NUT FOR TIRE VALVES. E. G. Oakley, Southport, assignor to Bridgeport Brass Co., Bridgeport, both in Conn.

1,655,105 BRIDGE WASHER FOR TIRE VALVES. E. G. Oakley, Southport, assignor to Bridgeport Brass Co., Bridgeport, both in Conn.

1,655,132 PNEUMATIC TIRE AIR DEFICIENCY ALARM DEVICE. H. S. Christophersen, Odense, Denmark.

January 10, 1928*

1,655,440 MAKE-UP MASK. Jacob Soble, New York, N. Y.

1,655,508 ANTISKID DEVICE. H. T. Odean, assignor of one-third to A. E. Larson and one-third to H. C. Christianson all of Spokane, Wash.

1,655,652 BOOT. T. J. Kemper, Bronx, N. Y.

1,655,678 ATOMIZER. F. C. Dorment, Wellington, O., assignor of one-half to A. T. Fletcher, Washington, D. C.

1,655,715 DETACHABLE PUMP AND SLIPPER RETAINER. D. A. Sneeston, Providence, R. I.

1,655,777 VEHICLE BUMPER CUSHIONING DEVICE. Alfred Weiland, Neshanic, N. J., assignor to Pneumatic Appliance Corp., New York, N. Y.

1,655,818 SHOULDER STRAP. Clarence Mayer, assignor to Nature's Rival Co., both of Chicago, Ill.

1,655,854 PUNCTURE LOCATOR. Frank Bailey and W. S. Engel, Kansas City, Mo.

1,655,920 POWER TRANSMITTING OR DRIVING BELT. Rudolf Roderwald, Berlin, Germany.

1,655,986 TIRE PUMPING MECHANISM. H. C. Crandall, Kansas City, Kan.

1,656,032 SPOOL HEAD. F. C. Birkholtz, Mercerville, assignor to Thermoid Rubber Co., Hamilton Township, both in N. J.

1,656,096 MEANS FOR ATTACHING HEELS TO SHOES. Rocco Conticchio, assignor of two-thirds to John and Albert Kullman, both of Mt. Vernon, N. Y.

1,656,141 RESILIENT WHEEL. Bernardo Cavacchioli, Chicago, Ill.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

Dominion of Canada

December 20, 1927

276,375 TIRE PATCH. C. V. Hall, Washington, D. C., U. S. A.

276,386 STOCKING SUSPENDER. Marta Kunicke, Storkow, Mark, Germany.

276,481 UPHOLSTERY. David Moseley & Sons, Ltd., assignee of G. E. Bermingham, both of Manchester, County of Lancaster, England.

276,482 UPHOLSTERY. David Moseley & Sons, Ltd., assignee of Reginald Moseley, both of Manchester, County of Lancaster, England.

December 27, 1927

276,546 RESILIENT WHEEL. Bernardo Cavacchioli, Chicago, Ill., U. S. A.

276,714 NURSING BOTTLE WITH NIPPLE. R. G. A. Beck, Montreal, Quebec.

January 3, 1928

276,765 VEHICLE TIRE. Harry Linwood, San Francisco, Calif., U. S. A.

United Kingdom

November 30, 1927

278,424 VEHICLE WHEEL. W. E. Kimber, 9, St. Albans Rd., Highgate, London.

278,482 SOLID TIRE. W. J. Hill, 28, Orchard St., Pontardawe, Swansea.

278,491 TIRE VALVES. A. Jepson, 63, Penny St., Lancaster.

278,575 MUDGUARD. N. Maclean, 181, St. Andrews Rd., Pollokshields, T. Quinn, 29, Braemar St., Langside, and F. Duffy, 55, Hamilton St., Govan, all in Glasgow.

278,617 STOCKING PROTECTOR. I. B. Kleinert Rubber Co., 485 Fifth Ave., assignee of C. C. Morrison, 57 W. 58th St., both in New York, N. Y., U. S. A.

278,632 BOBBINS. Manhattan Rubber Mfg. Co., Passaic, assignee of H. van N. Snyder, Clifton, both in N. J., U. S. A.

December 7, 1927

278,785 FRICTION PROMOTING COMPOSITIONS. J. Talbot, 8 Mayfair Ave., Cranbrook Park, Ilford, London.

278,798 JAR COVER. A. A. Goss, 3 Tavistock Rd., Westbourne Park, London.

278,803 GOLOSH FASTENER. New Liverpool Rubber Co., Ltd., 2 Cambridge St., Manchester, and G. F. Powell, St. James' House, St. James' St., London.

278,842 ELECTRIC INDUCTANCES. C. Oliver, 3 Shepherd's Green, Chislehurst, Kent, and Oliver Pell Control, Ltd., Cambridge Pl., Burrage Rd., Woolwich, London.

278,850 ATHLETIC SHOES. Liverpool Rubber Co., Ltd., 2 Cambridge St., Manchester, and I. W. Davies, Liverpool Rubber Co., Walton Works, Liverpool.

278,918 PNEUMATIC TIRE PRESSURE GAGE. R. G. Jones, 24 Maple Grove Ave., and D. H. Morris, 21 Maple Grove Ave., Toronto, Canada.

278,993 ELECTRIC CABLES. F. Meiwald, 2 Westtrakt, Schloss, Schronbrunn, Vienna.

Chemical patents will be found on page 77. Machinery and process patents will be found on pages 80-81.

279,015† TIRE ATTACHMENTS TO RIMS. Michelin et Cie, Clermont-Ferrand, Puy-de-Dome, France.

279,030† SURGICAL PLASTER. D. Sarason, 17 Heinrich Hertzstrasse, Hamburg, Germany.

December 14, 1927

279,114† GAITERS. Neue Gummigamaschen Ges., 8 Neue Jakobstrasse, Berlin.

279,115† GAITERS. Neue Gummigamaschen Ges., 8 Neue Jakobstrasse, Berlin.

279,207 PRACTICE GOLF BALLS. A. Speedy, 8 Sunbury Ave., East Sheen, and A. G. Spalding & Bros. (British) Ltd., 317 High Holborn, both in London.

279,221 UNIVERSAL JOINTS. E. R. Siegenthaler, 29 Waterford Rd., Fulham, London.

279,265 UNDERWATER BEARING BUSH. F. Niblock, Plantation House, Keppel Harbour, Singapore.

279,291 RUBBER LINED TANKS. Soc. Electromecanique D'Appareillage pour L'Essence, 2 Rue du Parc, near Bois-Colombes, France.

279,366 TOE SEPARATING DEVICE. R. J. Noar, 54 Park Rd., Pendleton, Lancashire.

279,404† FOOT BANDAGE AND ARCH SUPPORT. K. Miczuga, 42 Stampfenbachstrasse, Zurich, Switzerland.

279,449† RENEWABLE HEEL SECTION.. L. J. Harrison, Derby, Conn., U. S. A.

December 21, 1927

279,839† TIRE. L. Tubarao, 195 Rua Riachueto, Rio de Janeiro, Brazil.

December 30, 1927

279,998 BICYCLE HANDLE. J. J. Cresswell, 77 Victoria St., Grimsby.

280,055 TIRE. W. J. Fieldhouse, St. Stephen's Wheel Works, St. Stephen's St., Birmingham.

280,087 PNEUMATIC TIRE. A. J. Warsaw, 1043 Warden St., Grand Rapids, Mich., U. S. A.

†Not yet accepted.

Germany

453,111. PNEUMATIC TIRE. Metzeler & Co., A. G., Westendstrasse 133, Munich.

453,871. SPONGE RUBBER INSOLE. Christian Rehse, Lichtgraben 14, Halberstadt.

454,352. DRAWBAND. Cosman, Villbrandt & Zehnder A. G., (Vereinigte Gummibandfabriken), Elberfeld.

Trade Marks

United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section (1) (b), are nontechnical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

December 13, 1927

Act of February 20, 1905

236,344. BANNER—dress shields. I. B. Kleinert Rubber Co., New York, N. Y.

236,350 Oblong about which are grouped children in various attitudes of play—shoes and overshoes. I. Miller & Sons, Inc., Long Island City, N. Y.

236,351 Fancy oblong, at one end of which is the representation of a group of children—shoes and overshoes. I. Miller & Sons, Inc., Long Island City, N. Y.

236,394 RAPIDO — rubber working machinery, particularly tubers. The Williams Foundry & Machine Co., Akron, O.

236,414 NORUNETTE—elastic webbing textile piece goods. Everlastik, Inc., Chelsea, Mass.

236,452 ASESCO—solvent cleaners for washing dishes, rubber floors, etc. Finnell System, Inc., Hannibal, Mo.

236,515 SUPER TAILORED—overcoats, raincoats, etc. Roberts-Wicks Co., Utica, N. Y.

236,516 PLU-GUM—portable tire casing repair apparatus comprising plugs and inserting instruments. The Kex Mfg. Co., Cleveland, O.

236,528 "POWDER PUFF" and "BEDELL"—Shoes and gloves of leather, rubber, etc. The Bedell Co., New York, N. Y.

236,530 ADJUSTIK—shoes of leather, rubber, etc. C. P. Ford & Co., Inc. Rochester, N. Y.

December 20, 1927

Act of February 20, 1905

236,611 Representation of a tire with the letter "C" repeated on the curved sides on either side of the tread—tires. Cupples Co. Mfgrs., St. Louis, Mo.

236,691 RUBBER-WELD—cement. Rubber Weld Sales Co., Cambridge, Mass.

236,798 Representaton of a shield half way through the center of which appears an automobile on which are super-imposed the words: "AUTO VITA"—sheet rubber patch stock and portable rubber tire and tube repair kits. Auto Vita Mfg. Co., Chicago, Ill.

236,799 AUTO VITA—sheet rubber patch stock and portable rubber tire and tube repair kits. Auto Vita Mfg. Co., Chicago, Ill.

Act of March 19, 1920

236,824 New England—tires, inner tubes, repair kits, etc. New England Mills Co., Chicago, Ill.

December 27, 1927

Act of February 20, 1905

236,852 THE HARRISTER—raincoats and rain capes. Harris Raincoat Co., New York, N. Y.

236,860 AIR-O-PEDIC ARCH—boots and shoes of leather, rubber, etc. P. C. Wolfer Co., Everett, Mass.

236,866 MEDIC—sanitary rubber coated aprons. Ready Apron Co., Chicago, Ill.

236,906 TOPICAL—waterproof and rainproof coats. The Express Rubber Co., Ltd., London, England.

236,922 Mogul—rubber water bottles used for therapeutic and medical purposes. The Miller Rubber Co., Akron, O.

236,957 LO-N-HI—overshoes. The B. F. Goodrich Co., New York, N. Y.

236,962 AIRO HEEL REST—resilient inserts for boots and shoes of rubber, leather, fiber, etc. P. C. Wolfer Co., Everett, Mass.

Act of March 19, 1920

236,974 DURABLE MAT CO.—mats made of used tires. Durable Mat Co., Inc. Seattle, Wash.

January 3, 1928

Act of February 20, 1905

237,030 Representation of a polar bear, beneath the representation the words: "Trade Mark," both enclosed in a double circle containing the words: "WALES-GOODYEAR SHOE COMPANY"—boots and shoes of rubber, fabric, etc. The Goodyear's Metallic Rubber Shoe Co., doing business as Wales-Goodyear Shoe Co., Naugatuck, Conn.

237,151 Pennant containing the words: "COLLEGE CHUMS"—shoes of leather, rubber, etc. Cedar Grove Shoe Mfg. Co., Cedar Grove, Wis.

237,246 RE-SOL-IT — adhesive compound Solomon Edward Aaron, Boston, Mass.

January 10, 1928

Act of February 20, 1905

237,326 DURO—tire finish or dressing. O'Neil Duro Co., Milwaukee, Wis.

237,349 808 — vulcanization accelerators. The Grasselli Chemical Co., Cleveland, O.

237,533 STICK-A-SOLES—plates or pads for attachment to the soles of boots and shoes. Phillips' Patents, Ltd., London, England.

237,536 GAMBOLA—play balls made of rubber, wood and metal. Frederick Pfeiffer, Sr., Freeport, N. Y.

Act of March 19, 1920

237,603 DOLLAR STORES—dress shields, hairpins, etc. A J. Clark, doing business as Clark's Dollar Stores, Los Angeles, Calif.

237,608 BELL GRIP—exercising devices. Whitely Exerciser Co., Palisades Park, N. J.

237,614 STOUT ARCH — footwear. Lane Bryant Inc., New York, N. Y.

Dominion of Canada

Registered

December 13, 1927

42,927 Three spaced concentric colored stripes or bands, disposed centrally of and extending circumferentially around the sidewall portion of a tire casing, and placed symmetrically on opposite sides thereof, as indicated by the line-shading which demotes the colors blue, gold and blue—tires and tubes. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ont.

42,939 Three spaced substantially concentric silver stripes or bands, disposed centrally of and extending circumferentially around the sidewall portion of a tire casing, and placed symmetrically on opposite sides thereof—tires and tubes. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ont.

December 20, 1927

42,982 Three spaced concentric colored stripes or bands, disposed centrally of and extending circumferentially around the sidewall portion of a tire casing, and placed symmetrically on opposite sides thereof, the colored strips or bands being white, blue and white, respectively, with the line shading denoting the blue—tires and tubes. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ont.

42,995 REDDY—sporting goods, namely golf tees, balls, garters, etc. The Nieblo Mfg. Co., Inc., New York, N. Y., U. S. A.

43,001 BIBENDUM—tires inner tubes, etc. E. E. Michelin, Michelin et Cie., Clermont-Ferrand, France.

December 27, 1927

43,023 PACEMAKER—rubber goods. Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ont.

43,034 MOGUL—rubber goods. Dominion Rubber Co., Ltd., Montreal, Quebec.

United Kingdom

November 30, 1927

484,703 BETTY—hair combs. The North British Rubber Co., Ltd., Castle Mills, Fountainbridge, Edinburgh.

December 7, 1927

483,126 SUNRISE—erasers, pencils, etc. Anciens Établissements Baignol & Farjon, 3 rue Rossini, Paris, France.

December 14, 1927

481,813 Representation of a ship with the letter "P" superimposed on the sail—rubber and gutta percha goods. The Poppe Rubber & Tyre Co., 108, Sherland Rd., Twickenham, Middlesex.

483,046 Diamond containing a fanciful design—syringes, etc. Hamburger Gummiwaren-Fabrik Phoenix Aktiengesellschaft, Phoenix Rubber Works, Harburg A/Elbe, Germany.

483,047 Diamond containing a fanciful design—boots, shoes and bathing caps. Hamburger Gummiwaren-Fabrik Phoenix Aktiengesellschaft, Phoenix Rubber Works, Harburg A/Elbe, Germany.

483,048 Diamond containing a fanciful design—tires, sheeting, washers, bath plugs, etc. Hamburger Gummiwaren-Fabrik Phoenix Aktiengesellschaft, Phoenix Rubber Works, Harburg, A/Elbe, Germany.

484,077 GLOSHETTE—boots and shoes. Gutta Percha & Rubber, Ltd., 47 Yonge St., Toronto, Canada.

485,302 BEBETEX—rubber solution. Boston Blacking Co., Ltd., 88, Brunswick St., Leicester.

December 21, 1927

483,750 DELAWEAR—all goods included in Class 40. The Dela Rubber Co., Ltd., 2, Cambridge St., Manchester.

484,537 DELAPROOF—all goods included in Class 38. The Dela Rubber Co., Ltd., 2, Cambridge St., Manchester.

December 28, 1927

481,549 Square containing the words: "J. ROUSSEL," beneath the words the representation of a female figure—elastic corsets, brassieres and stockings. Anatole Bondo, trading as J. Roussel, 173, Regent St., London, W.1.

Designs

United States

74,106 TOY BALLOON. Term 7 years Jacob Gordon, Brooklyn, N. Y.

74,176 TIRE. Term 14 years. Robert Iredell, assignor to The General Tire & Rubber Co., both of Akron, O.

74,213 TOY BALL. Term 14 years. F. A. Cigol, Paterson, N. J.

74,246 HEEL. Term 14 years. J. B. Hadaway, Swampscott, Mass., assignor to United Shoe Machinery Corp., Paterson, N. J.

Dominion of Canada

7,775 TIRE. Dominion Rubber Co., Ltd., Montreal, Quebec.

7,780 WASHER FOR SHANK BALL COCK PISTON. J. A. Desmarteau, Montreal, Quebec.

7,799 TIRE. Dominion Rubber Co., Ltd., Montreal, Quebec.

7,818 TIRE. Dominion Rubber Co., Ltd., Montreal, Quebec.

Germany

1,010,719. BRUSH. Georg Schmidt, Savignystrasse 61, Frankfurt a. Main.

1,010,823. ADVERTISING BALLOON. Rheinische Gummi-und Asbest-Gesellschaft Schreven Und Riedel, Duisburg.

1,010,836. MAT. Siegfried Baecker, Kornerstrasse 8, and Albert Rolle, Franz Ruckertstrasse 8, Frankfurt a. Main.

1,011,338. HAND PROTECTOR FOR CYCLISTS. Oscar Thiem, Sommerfeld.

1,011,429. SHOE. Firma J. Landsberger, Rosenthalerstrasse, 40-41, Berlin N. 54.

1,011,483. RAINCOAT. Hartmann & Klempner G.m.b.H., Rosenstrasse 17, Berlin C. 2.

1,011,498. HOT WATER BOTTLE. C. Nuller Gummiwarenfabrik, A. G., Berlin-Weissensee.

1,011,698. BELT. Waldemar Kromer, Adamstrasse 44, Nurnberg.

1,011,795. HANDLE. Inventia Patent-Verwertuns-Gesellschaft, Schaffhausen, Switzerland. Represented by W. Zimmermann and E. Jourdan, Berlin, S. W. 11.

1,012,262. PLATE FOR DRAIN BOARD. Rheinische-Gummi-Gesellschaft, W. Klotz & Co., Dusseldorf.

1,012,314. TIRE. Heinr. Klinkhammer, Hubertusstrasse 195, Krefeld.

1,012,487. SHAMPOO BRUSH. Hans Frohwein, Robert Blumstrasse 11. Koln-Lindenthal.

1,012,709. BULB SYRINGE. Gertruder Bandekow, Belle-Alliance Platz, 7-8, Berlin S. W. 61.

1,012,764. NON-SKID HEELS AND SOLES. Friedrich Wilop, Monckebergstrasse 7, Hamburg 1.

1,012,903. COLLAPSIBLE BODY. Bruno Lindemann, Ritterstrasse 77-78, Berlin S. W. 68.

1,013,029. CLOSURE FOR RESPIRATORS. Deutsche - Gasgluhlicht - Auer - Gesellschaft, m.b.H., Rotherstrasse, 16-19, Berlin, O. 17.

1,013,057. SUCTION CAPS FOR TEAT CUPS. Casper Schwegmann, Ostbevern i. W.

1,013,065. FLOAT FOR GLASS BRUSHES. Richard Runkel, Blumenstrasse, 8, Elberfeld.

1,013,072. STRIP FOR BELTS, SUSPENDERS, ETC. Martha Karstedt, nee Lesz, Frankfurter Allee 42, Berlin O. 112.

1,013,256. LINEN HOLDER. Martha Semmt, nee Sendler, Ebersbach i. S.

1,013,650. RAINCOAT. Paul Weimar Lunen a. d. Lippe.

1,013,723. TUBE. Siemens - Schuckert Werke, G. m.b.H., Berlin-Siemensstadt.

Labels

United States

33,138 NO LEAK RUBBER DRESSING. Dressing solution. F. O. Farnsworth, doing business as Barberton Rubberized Mfg. Co., Barberton, O., Published Oct. 3, 1927.

DOMESTIC EXPORTS OF TIRE FABRIC, according to figures prepared by the Department of Commerce, for the month of November, 1927, reached a total of 401,656 square yards, with a value of $162,676. United Kingdom was the largest purchaser taking 194,320 square yards, value $76,198.

LARGE SHIPMENT OF CRUDE RUBBER BROUGHT TO LOS ANGELES

Pacific electric train of 12 cars bringing 6,000 cases of crude rubber to Goodyear Tire & Rubber Co. This consignment, all grown on Goodyear plantations in Sumatra, is said to be the largest shipment of crude rubber ever brought into the Port of Los Angeles.

Rubber Market Review for 1927

New York Outside Market

THE downward sweep of spot rubber prices that featured the market in 1926 ceased at the 40-cent level early in September of that year, at which price 1927 opened. For the first five months that level was maintained, succeeded in June by a sudden drop to about 35 cents. At this level the price continued again, with minor fluctuations, for five months. It regained the 40-cent level about December 1 and was practically constant at that price till the close of the year. The prices on 1928 futures at their lowest levels are all above 40 cents and the consensus of market opinion is that crude rubber prices have assumed an upward tendency.

World's production of all grades for 1927 was 625,000 tons, compared with 614,000 tons in 1926. Importations of all grades into the United States totaled 432,316 tons in 1927.

The estimated consumption figures for the rubber industry in the United States for 1928 compared with that for 1927 are as follows:

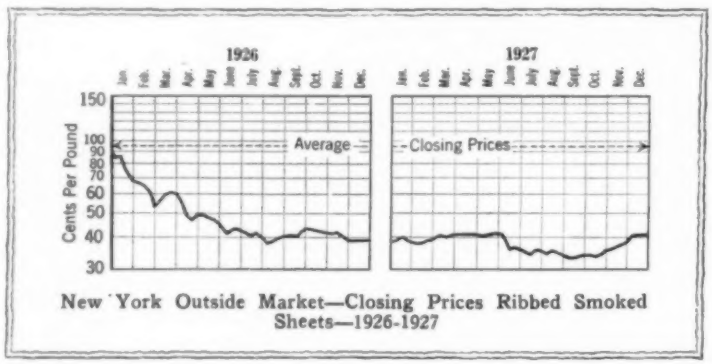
	1927 Tons	1928 Tons
Consumption of crude	375,000	400,000
Consumption of reclaim	200,000	225,000

The 1928 estimates are based upon the assumption that the production of automobile tires will be 70,000,000.

Viewed progressively the 1927 New York outside market opened dull in January at 38⅝ cents, the price ascending to 40⅞ cents about the middle of the month, from which level it slacked off to 38 cents at the close. Factories, as a whole, showed little interest and bought only on recessions for current needs.

During February two holidays contributed somewhat to slowing up business. Factory interest throughout the month was scattering and limited to small filling-in lots. The average price of spot ribs the first three weeks of February was 37.9 cents, and for the last week 40 cents, advancing with an increase in factory demand.

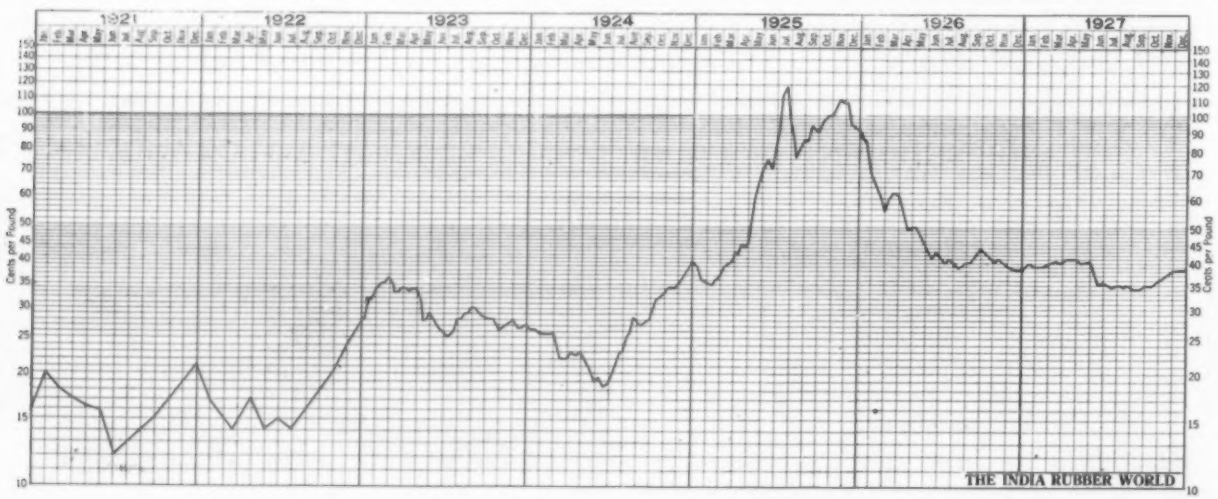
The market for March was strong and active with prices steadily advancing to the 42-cent level because of the spring activity of rubber manufacturing in all lines, more particularly of tires, which were operating at capacity. Stocks in the United States, London and the Far East totaled about 175,000 tons. This fact relieved manufacturers of any concern regarding the then impending probability of reduction of the exportable allowance of British grown rubber to 60 per cent of standard production effective May 1, 1927.



New York Outside Market—Closing Prices Ribbed Smoked Sheets—1926-1927

In April rubber manufacturing operations continued with unabated activity but without effect upon the crude rubber market which exhibited in succession four weeks of subnormal activity approaching stagnation. Higher prices prevailed in the primary markets over those in New York. The bulk of the tonnage required for American consumption being purchased in the Far East confined dealings in New York to the narrow limitations of spot and nearby in minor tonnages. The steadiness with which spot rubber was held to the 40-cent level was notable.

The crude rubber market for May was a continuation of that for April in lack of activity and steadiness of prices. Price variations for the month were only fractional from 40¾ to 41 cents. The trade discounted the reduction of the exportable allowance to 60 per cent and it had no disturbing effect upon the market. Prices were practically stabilized because of three influences, (1) the control of the situation by the powerful American buying organization, (2) the conviction of consumers of the existence of an abundance of rubber available for the year's consumption, and (3) the heavy increase in the tonnage of reclaimed rubber enter-



New York Outside Market—Closing Prices Ribbed Smoked Sheets—1921-1927

New York Outside Market—Low and High Spot Rubber Prices—1919-1927

Prices in Cents Per Pound

		January	February	March	April	May	June	July	August	September	October	November	December
1919.	First latex crepe	52 @ 58	56 @ 58	51 @ 56	47 @ 50½	45½ @ 48	40 @ 45	39½ @ 42½	41½ @ 45½	45½ @ 53½	49½ @ 55	53 @ 54½	51 @ 54½
	Ribbed smoked sheets	51 @ 56	54 @ 57	50 @ 54½	46½ @ 49¾	44½ @ 47	39 @ 44	38¾ @ 41½	39¾ @ 44½	44½ @ 51½	48½ @ 54	52 @ 54	51 @ 54½
	Upriver fine	58½ @ 61	58½ @ 59½	55½ @ 58½	56 @ ...	56 @ 56¼	55½ @ 56¾	55½ @ 56	54 @ 55	54½ @ 56	52 @ 55	49½ @ 52	47 @ 49
	Upriver coarse	34 @ 36	34 @ 35	34 @ 35	34 @ ...	34 @ 34¾	32½ @ 34	31½ @ 32	32 @ 32	32¼ @ 33½	33 @ 35	34½ @ 35	35 @ ...
1920.	First latex crepe	51 @ 55¾	45¾ @ 51½	46 @ 48¼	42½ @ 46½	38 @ 43¾	37½ @ 39	30 @ 35¾	29¾ @ 33¾	23¾ @ 28¾	21 @ 26	18½ @ 21	16¼ @ 19¾
	Ribbed smoked sheets	51 @ 55	45 @ 56½	40 @ 48	42½ @ 45	38 @ 43	37¼ @ 39	29½ @ 35	29¼ @ 33¾	23½ @ 28¾	20 @ 24	17½ @ 19	16 @ 18½
	Upriver fine	45 @ 50	42½ @ 45	31½ @ 43	40½ @ 42	34½ @ 41¾	36¾ @ 38½	34¼ @ 35¾	30 @ 35	26 @ 30	23½ @ 26	20½ @ 23	18 @ 20½
	Upriver coarse	34 @ 37	31½ @ 34	31¾ @ 31¾	30 @ 32	29½ @ 30½	27¼ @ 28¾	22 @ 32	20 @ 27	16½ @ 21	15 @ 16½	14½ @ 15½	14 @ 15
1921.	First latex crepe	19 @ 21¾	19½ @ 20	18¾ @ 19½	17½ @ 19¾	13½ @ 17½	14 @ 17	14½ @ 16	13½ @ 15	14 @ 16	15 @ 17	16 @ 19¾	16 @ 18
	Ribbed smoked sheets	18 @ 20½	17½ @ 19	16¼ @ 18	15½ @ 17¾	11½ @ 14¾	11¾ @ 13½	13¾ @ 15	13½ @ 15	13¾ @ 15¾	14¾ @ 17	15¾ @ 19¾	18¾ @ 21¼
	Upriver fine	18 @ 19½	17 @ 17½	16½ @ 18	16½ @ 18½	15½ @ 18	17½ @ 19½	17 @ 19½	15 @ 19½	17½ @ 21½	21 @ 23	22 @ 24½	22¾ @ 24
	Upriver coarse	13 @ 17	13¾ @ 14	11¾ @ 12	09 @ 10½	08¾ @ 09½	07 @ 09¾	07½ @ 09	08¾ @ 11½	9½ @ 11½	11¾ @ 12	12 @ 15	14 @ 15½
1922.	First latex crepe	14 @ 16¾	13¾ @ 15	14¾ @ 16¾	14¾ @ 16½	14¾ @ 16¼	14¾ @ 15¾	13¾ @ 14¾	13¾ @ 14¾	13¾ @ 15¾	15¼ @ 23¾	22¾ @ 26	26¾ @ 28¾
	Ribbed smoked sheets	13 @ 15¾	14¾ @ 16¾	14¾ @ 16¾	14¾ @ 16¾	14¾ @ 15¾	14¾ @ 15¾	13¾ @ 14¾	13¾ @ 14¾	13¾ @ 15¾	15¼ @ 22¾	22¾ @ 26	26¾ @ 28¾
	Upriver fine	17¼ @ 23	17¾ @ 18½	17¾ @ 19¾	16¾ @ 19¾	15¾ @ 18¾	15¾ @ 18¾	14¾ @ 20	13¾ @ 19½	15¾ @ 19	18½ @ 24	23¾ @ 25	25½ @ 28¾
	Upriver coarse	12¼ @ 18	12 @ 13	12 @ 13	12½ @ 14	12½ @ 13¾	12¾ @ 14	13 @ 14	13½ @ 14	13½ @ 19	17 @ 19	17 @ 20	18½ @ 19
1923.	First latex crepe	28½ @ 37½	33¾ @ 36¾	33¾ @ 35¾	31¾ @ 34¾	26¾ @ 31¾	24¾ @ 29¾	24¾ @ 28½	27¼ @ 30½	28½ @ 30½	26¾ @ 28½	26¾ @ 28½	27½ @ 28½
	Ribbed smoked sheets	28½ @ 37½	33¾ @ 36¾	33¾ @ 35¾	31 @ 34¼	26¾ @ 31¾	24¾ @ 29¾	24¾ @ 28	27¼ @ 30½	28¾ @ 29¾	25¾ @ 27¾	26¾ @ 27¾	27¾ @ 28½
	Upriver fine	24½ @ 36	33 @ 36	33½ @ 34	28½ @ 30¾	26 @ 28	26¾ @ 29	26¼ @ 28	27 @ 28½	26½ @ 28½	22 @ 26¾	21½ @ 24½	23½ @ 25
	Upriver coarse	25 @ 28¾	25 @ 28	26½ @ 28½	21¾ @ 25½	23½ @ 25½	23¾ @ 25	23 @ 24¾	22 @ 24¾	22 @ 24¾	18 @ 23¾	17¾ @ 19¾	18 @ 19
1924.	First latex crepe	24¾ @ 27	25 @ 26½	20½ @ 25½	22¾ @ 24	18 @ 23½	19¾ @ 21	23½ @ 25½	25¼ @ 28¾	27 @ 28¾	29 @ 33½	33½ @ 35	35¾ @ 39¾
	Ribbed smoked sheets	24¾ @ 26½	25 @ 26	22 @ 24¾	18¾ @ 22½	18¾ @ 23½	19¾ @ 22¾	23½ @ 27¾	27¾ @ 28¾	26¼ @ 28	28½ @ 33	33½ @ 35	35½ @ 39¾
	Upriver fine	21 @ 23½	19¾ @ 20¾	18½ @ 20½	19 @ 21	18½ @ 21½	20 @ 21½	20 @ 23¾	23¾ @ 26¾	26¼ @ 28	28½ @ 32½	32½ @ 33	33½ @ 39¾
	Upriver coarse	17¼ @ 18½	17 @ 17½	15½ @ 17½	16 @ 17½	13¼ @ 16½	13¼ @ 15¼	12½ @ 15¾	15 @ 17½	16¼ @ 17½	18¾ @ 23	22 @ 24	23¼ @ 29
1925.	First latex crepe	34¾ @ 39½	34¾ @ 39	38½ @ 44½	41¾ @ 46¾	44¾ @ 69½	78 @ 1.22	71 @ 99	80 @ 96	92 @ 1.03½	99 @ 1.14	89 @ 1.10
	Ribbed smoked sheets	34¾ @ 39½	34¾ @ 38¾	38½ @ 43¾	41¾ @ 46	44¾ @ 70	81 @ 1.23	64 @ 99	79 @ 95	98 @ 1.13	88 @ 1.10
	Upriver fine	33 @ 37	31½ @ 33¾	31½ @ 37	36 @ 37½	37¾ @ 57	76 @ 1.13½	59 @ 93	68 @ 75	71½ @ 95	89 @ 1.03	79 @ 1.04
	Upriver coarse	26¼ @ 29½	25¾ @ 26¾	26½ @ 30	29¾ @ 31	31½ @ 45	41 @ 62½	60 @ 74	46 @ 63	45 @ 49½	46 @ 63	60 @ 76	57 @ 76½
1926.	First latex crepe	71 @ 92½	57 @ 70	53½ @ 64	47¾ @ 60	47 @ 50½	40¾ @ 44½	37 @ 41	41 @ 42¾	40¾ @ 43¾	42¾ @ 43¾	38¾ @ 42	36¾ @ 39
	Ribbed smoked sheets	70 @ 91	55½ @ 69	52¾ @ 63	46½ @ 59½	47 @ 50½	40¼ @ 45	36¾ @ 41½	37 @ 42¾	40 @ 43¾	42¾ @ 43	38¾ @ 42	36¾ @ 39
	Upriver fine	62 @ 83	44 @ 63	41 @ 59½	38 @ 53½	38 @ 43	34 @ 37	33 @ 38	37 @ 40	38 @ 39	39 @ 39	38 @ 39	33 @ 33
	Upriver coarse	38 @ 64	30 @ 50	35 @ 45	30 @ 38	24½ @ 30¼	20 @ 24½	23 @ 25¼	21 @ 24½	26½ @ 27	28 @ 30	22½ @ 28	21 @ 23
1927.	First latex crepe	38 @ 41½	37½ @ 40¾	40 @ 42¾	40¾ @ 41¾	41 @ 41¾	35½ @ 41¾	34¾ @ 35¾	34¾ @ 36¾	33 @ 34¾	33¾ @ 35½	35½ @ 41¼	41¼ @ 41¾
	Ribbed smoked sheet	37¾ @ 41½	37¾ @ 40	39½ @ 42¾	40½ @ 41¾	40½ @ 41¾	34¾ @ 35¾	34¾ @ 35¾	36¾ @ 37	34¾ @ 35	35½ @ 41¼	39¾ @ 41¾	41¾ @ 41½
	Upriver fine	29 @ 34¾	27¾ @ 32	32 @ 35	32½ @ 33	32½ @ 37	30 @ 32	29½ @ 31	30 @ 32	28¼ @ 30	28 @ 35½	30½ @ 35	30½ @ 35
	Upriver coarse	22 @ 25	20½ @ 25	24½ @ 27¾	23¾ @ 26¾	23¾ @ 26¾	20 @ 25	19½ @ 21	19 @ 20¾	19 @ 20	19 @ 22¾	21¾ @ 28	24¾ @ 27¾

ing consumption. This amounts to practically 50 per cent of the crude rubber employed and is an appreciable price stabilizing factor.

The long period of dullness characterizing the spring market was sharply varied in June by sagging prices, which depressed spot ribs from 40¾ cents on June 1 to 35 cents on June 15. This proved to be the price break of the year, an upward trend not appearing until late in the autumn. The break was attributed to a number of causes, including fear of a general tire price reduction, continued lack of factory buying, large stocks available in spite of restriction of exports to 60 per cent of standard.

In July a general state of dullness marked the operations in crude rubber. Manufacturers were satisfied that there was in sight 30,000 tons of rubber in excess of the probable consumption of the year and were convinced, and as it appeared correctly, that the price would be maintained around the 35-cent level under the influence of the American buying organization, or agency, serving as the principal stabilizing factor.

Virtually the same market conditions prevailed in the August as in the July market. The price of spot ribs held close to 35½ cents and only reached 36-36¼ cents on two days. Consumption was steady and in good volume. Ample stocks and strong control of the market kept the price very steady.

The September market was duller if possible than those of the few months preceding. Prices being around 33½-34 cents with the trade simply marking time and factories buying only from hand to mouth. All were awaiting announcement by the Colonial office of its decision with regard to the application of the restriction act for the quarter beginning November 1. Stocks were ample and American estimates of 1927 consumption were from 15,000 to 25,000 less than those emanating from England.

In the October market, prices continued unchanged from the preceding few months. Factories exhibited no interest in future positions and purchased only for their current requirements. The price for spot ruled firm with slightly rising tendency. On October 1 it was 33½ cents and advanced gradually to 35½ cents on October 31.

The November market experienced a steady rise in smoked sheets during practically the entire month due to the increase of interest on the part of the factories and scarcity of offerings in the Far East. The proposed closer control of shipments under the restriction plan and suppression of smuggling were given as the chief causes for the advance. On November 1 spot ribs were 35¼ cents and closed on November 30 at 40¼ cents.

From December 1 to the holidays the December market showed a very steady price list. Early in the month prices stiffened with higher eastern and London cables and this tendency was supported by active trading and speculation. Throughout the month spot ribs were 40 cents or higher. The movement ranged from 40 to 41.2 cents. On December 1 it was 40⅛ cents and on December 31, 41.2 cents.

The Rubber Exchange of New York

In 1927, the second year of the Rubber Exchange of New York the volume of business transacted reached a total of contracts equivalent to 104,275 tons valued at $220,000,000. The membership increased and the price of seats rose to $6,000 which was the price paid at the last sale of the year, December 22.

The January market favored the likelihood of higher levels for futures due to the technical position of stocks with relation to the operation of restriction under the revised rules for 1927.

February market for futures was dull, sagging and featureless with absence of buying interest. The high on March-October futures ranged from 38.6 cents to 42.4 cents.

March trading was more than double the tonnage of that in February. This was due in part to the longer month but chiefly to increased activity in tire production by enlargement of tire manufacturing schedules. The high on April-October futures ranged from 39.3 cents to 40.3 cents.

April market for futures was exceedingly dull week by week and just before the Easter holidays became practically stagnant. April showed much narrower fluctuations than usual for all positions. The spread for the 12 monthly futures was 3.6 cents between 40.5 to 44.0 cents.

May market conditions were dull and firm. The price records show only slight deviations during the period for any position. During the second and third week the high and low range disappeared.

June market experienced a sharp break. Foreign operators and domestic manufacturers sold against their stocks. Buying support was finally successful in arresting the decline. The usefulness of the Exchange was demonstrated by the readiness with which rubber manufacturers availed themselves of its facilities for selling forward delivery. The Board of Governors of the Exchange approved June 18 a scale of price differentials to apply on all deliveries made during July, 1927, against contracts on or after June 21, 1926.

July market showed high and low fluctuations of about one cent a pound for all positions. On July 11 sweeping reductions in the rates of commissions became effective. The new rates were approxicately 40 per cent lower than the old.

August price fluctuations were very moderate, not exceeding one cent and averaging less. The operations week by week were marked by dullness or only moderate activity. All positions rose during the first half of the month and in the latter half fell back an equal amount.

September market operations showed considerable activity among traders only, factory interest being conspicuously absent. The tendency favored easier prices. Many rumors were afloat concerning what the British Government might do about restriction for the next quarter.

October market operations were not as active as usual and fluctuations were narrow. The lack of trading interest was due to uncertainties and rumors of the pending regulations for the new restriction year beginning November 1.

November market resulted in strong active prices gradually rising throughout the entire month. The spread of the high for 12 monthly futures ranged from 37.5 cents for November, 1927, to 42.25 cents for October, 1928.

December transactions early in the month were among the most active in the history of the Exchange. Bullish sentiment prevailed for futures based on an expected increase in demand of tire manufacturers and decrease of stocks and shipments.

United States Crude and Waste Rubber Imports for 1927 by Months

	Plantations	Paras	Africans	Centrals	Guayule	Manicobas and Matto Grosso	Total 1927	Total 1926	Balata	Miscellaneous	Waste
January ..... *tons*	42,646	2,378	269	299	144	...	45,736	38,697	106	1,508	447
February	25,326	1,668	213	203	190	...	27,600	34,067	119	935	953
March	33,114	1,176	206	253	329	...	35,078	42,677	82	674	531
April	45,843	1,822	351	229	418	10	48,673	32,678	109	1,317	631
May	33,735	1,872	197	399	364	2	36,569	30,411	68	1,075	1,056
June	31,444	1,057	123	251	317	2	33,194	30,107	85	1,092	230
July	37,060	871	46	388	295	7	38,667	37,087	66	1,030	62
August	31,195	986	29	504	345	9	33,068	25,982	25	882	475
September	31,064	1,117	43	210	364	...	32,798	38,132	40	1,444	220
October	29,758	1,104	22	158	267	1	31,310	28,114	42	775	146
November	38,301	1,368	244	225	423	...	40,561	41,107	98	1,187	396
December	26,057	2,157	330	116	400	2	29,062	32,903	173	801	273
Total, 12 months, 1927 ..... *tons*	405,543	17,576	2,073	3,235	3,856	33	432,316	.....	1,013	12,720	5,420
Total, 12 months, 1926 ..... *tons*	386,748	13,184	3,619	4,861	3,524	26	.....	411,962	551	11,415	5,655

Compiled from statistics supplied by the Rubber Association of America, Inc.

British Malaya

RUBBER EXPORTS

An official cablegram from Singapore to the Malay States Information Agency, Malaya House, 57 Charing Cross, London, S. W. 1, England, states that the amount of rubber exported from British Malaya during the month of December last totaled 32,185 tons. The amount of rubber imported was 17,865 tons, of which 13,809 tons were declared as wet rubber. The following are comparative statistics:

	1926 Gross Exports Tons	1926 Foreign Imports Tons	1927 Gross Exports Tons	1927 Foreign Imports Tons
January.....	30,452	10,237	34,946	14,995
February....	30,440	8,306	27,528	11,697
March.....	35,012	14,800	41,346	17,462
April.....	23,727	10,565	29,041	13,069
May.....	31,231	10,604	31,393	15,491
June.....	30,624	11,764	32,607	14,706
July.....	28,824	15,280	23,947	12,697
August.....	34,625	13,595	30,371	17,105
September...	35,913	13,972	29,835	12,095
October.....	39,367	15,203	29,846	15,801
November...	34,302	12,201	28,277	19,860
December ..	36,811	14,716	32,185	17,865
Totals...	391,328	151,243	371,322	182,843

Note—The above figures represent the totals compiled from declarations received up to the last day of the month for export from and import to all ports of British Malaya, and not necessarily the actual quantity shipped or landed during that month.

DISTRIBUTION

The following is a comparative return of distribution of shipments during the months of November and December, 1927:

	November, 1927 Tons	December, 1927 Tons
United Kingdom	6,094	4,484
United States of America.....	17,200	24,112
Continent of Europe.....	1,648	1,198
British Possessions	876	775
Japan	2,448	1,605
Other foreign countries.....	11	11
Totals	28,277	32,185

RUBBER GOODS EXPORTS TO BRAZIL

The general economic improvement noted in Brazil resulted in a large increase in rubber goods exports to that country, the value of which during the first six months of 1927 was $1,490,698, a 119 per cent increase over the $681,994 exports for the same period in 1926.

The following table taken from *Commerce Reports*, gives the Brazilian exports from the United States for the first six months of 1926 and 1927.

Item	1926 Value	1926 Per Cent of Total	1927 Value	1927 Per Cent of Total
Automotive rubber goods...	$544,689	79.9	$1,267,518	85.0
Rubber footwear.....	9,709	1.4	35,205	2.3
Mechanical rubber goods..	76,420	11.2	126,209	8.4
Miscellaneous rubber goods	51,176	7.5	61,766	4.3
Total.....	$681,994	100.0	$1,490,698	100.0

ELMER S. WHITTIER HAS LOCATED WITH THE SOCIETÉ DES Procedes (FIT) Grenoble, France, as a chemical engineer working upon development problems. Mr. Whittier was formerly engineer in charge of mill room practices with The Fisk Rubber Co., Chicopee Falls, Mass., and installed the Banbury mixer in the factory.

RUBBER BOOTS EXPORTED TO UNITED KINGDOM DURING THE month of November amounted to 60,072 pairs, value $124,958; Sweden took 25,063 pairs, value $34,582; and Denmark, 7,152 pairs, value $13,707.

United States Rubber Statistics

IMPORTS OF CRUDE AND MANUFACTURED RUBBER

	October, 1927		Ten Months Ended October, 1927	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	67,613,125	$22,163,282	799,523,643	$290,265,772
Balata	103,097	54,778	862,079	326,853
Jelutong or Pontianak	1,120,597	121,604	14,915,264	2,157,255
Gutta percha	177,665	48,597	2,809,060	600,436
Guayule	1,018,942	239,868	9,297,178	2,221,740
Rubber scrap	1,687,317	86,082	17,244,764	752,045
Totals	71,720,743	$22,714,211	844,651,988	$296,324,101
Chicle *dutiable*	767,847	$415,131	9,192,038	$4,674,132
MANUFACTURED—*Dutiable*				
Rubber belting	39,581	$22,003	548,515	$332,980
Rubber tires	1,290	17,844	4,803	67,933
Other manufactures of rubber	.....	109,666	.....	1,132,140
Totals	40,871	$149,513	553,318	$1,533,053

EXPORTS OF FOREIGN MERCHANDISE

RUBBER MANUFACTURES				
Crude rubber	5,629,589	$2,042,713	50,741,513	$20,475,538
Balata	13,138	6,802	95,796	38,440
Gutta percha and rubber substitutes and scrap	.....	.....	99,565	14,638
Rubber manufactures	.....	19,445	.....	235,053
Totals	5,642,727	$2,068,960	50,936,874	$20,763,669

EXPORTS OF DOMESTIC MERCHANDISE

MANUFACTURED				
India Rubber				
Reclaimed	1,278,766	$103,478	15,925,111	$1,507,702
Scrap and old	2,930,032	172,605	24,131,154	1,458,597
Footwear				
Boots *pairs*	113,573	264,854	666,719	1,646,432
Shoes *pairs*	298,397	261,320	1,564,212	1,384,127
Canvas shoes with rubber soles *pairs*	376,280	278,304	4,101,550	2,806,911
Rubber water bottles and fountain syringes *number*	25,793	15,062	269,837	176,244
Rubber gloves *doz. pairs*	7,555	21,409	63,846	202,983
Other druggists' rubber sundries	.....	47,780	.....	377,400
Bathing caps *doz.*	3,469	8,868	150,420	320,347
Hard rubber goods				
Electrical hard rubber goods	102,467	28,858	984,993	238,268
Other hard rubber goods	.....	35,751	.....	324,746
Tires				
Casings, automobile *number*	179,460	2,262,606	2,259,079	28,999,128
Tubes, automobile *number*	132,717	302,060	1,381,525	2,952,868
Other casings and tubes *number*	4,029	9,705	49,820	145,446
Solid tires for automobiles and motor trucks *number*	10,201	231,940	88,202	2,565,601
Others	104,985	24,455	1,346,844	336,601
Tire accessories	.....	147,852	.....	1,542,103
Rubber and friction tape	102,623	26,644	1,249,080	358,798
Belting	511,408	264,380	4,104,735	2,182,516
Hose	503,365	182,902	5,981,585	2,249,165
Packing	241,954	110,723	2,062,710	938,985
Soles and heels	344,332	98,800	3,818,461	1,198,648
Thread	145,727	171,144	1,236,759	1,564,335
Rubber bands and erasers	82,103	54,728	740,510	535,532
Other rubber manufactures	.....	201,247	.....	1,996,839
Rubber toys and balls	.....	$16,523	.....	$149,984
Rubber balloons *gross*	41,476	74,684	441,573	594,303
Totals	.....	$5,327,475	.....	$58,010,322

Crude Rubber Imports by Customs Districts

	*November, 1927		Eleven Months Ending *November, 1927	
	Pounds	Value	Pounds	Value
Massachusetts	2,819,868	$893,994	41,301,952	$14,938,900
St. Lawrence	.....	.....	6,864	2,265
Buffalo	.....	.....	25,765	9,716
New York	81,604,398	25,897,494	786,999,827	281,732,173
Philadelphia	146,753	45,766	7,846,059	3,039,529
Maryland	193,944	62,258	22,042,198	7,865,832
New Orleans	.....	.....	2,057	227
Los Angeles	1,270,818	359,455	17,657,578	6,351,872
San Francisco	136,190	41,440	3,747,260	1,420,529
Oregon	22,400	7,488	783,184	300,569
Washington	.....	.....	112,000	44,240
Dakota	.....	.....	28	10
Michigan	.....	.....	910	325
Chicago	.....	.....	500	128
Ohio	250,860	87,533	4,468,292	1,596,324
Colorado	.....	.....	974,400	358,561
Totals	86,445,231	$27,395,428	885,968,874	$317,661,200

* Including latex, dry rubber content.

United Kingdom Rubber Statistics

IMPORTS

	November, 1927		Eleven Months Ended November, 1927	
UNMANUFACTURED				
Crude Rubber From—	Pounds	Value	Pounds	Value
Straits Settlements	9,539,700	£677,948	122,331,600	£9,417,726
Federated Malay States	5,355,900	381,595	59,776,500	4,571,437
British India	1,009,100	75,775	11,695,900	917,026
Ceylon and Dependencies	3,578,600	255,304	36,602,400	2,791,778
Other Dutch possessions in Indian Seas	1,185,300	79,941	24,483,100	1,876,813
Dutch East Indies (except other Dutch possessions in Indian Seas)	2,178,700	156,690	28,448,900	2,212,984
Other countries in East Indies and Pacific not elsewhere specified	379,700	26,844	2,881,600	215,498
Brazil	1,010,100	58,878	9,847,500	610,214
Peru	16,200	950	47,000	2,829
South and Central America (except Brazil and Peru)	8,400	539	183,600	13,079
West Africa:				
French West Africa	100	7	120,800	6,720
Gold Coast	42,500	2,675	560,100	38,106
Other parts of West Africa	197,200	12,482	1,753,800	124,241
East Africa, including Madagascar	164,200	11,596	1,502,500	111,459
Other countries	41,100	3,060	1,395,900	100,264
Totals	24,706,800	£1,744,284	301,631,200	£23,010,174
Waste and reclaimed rubber	703,200	9,418	6,662,400	101,857
Gutta percha and balata	333,500	32,467	4,475,900	404,541
Rubber substitutes	.....	.....	97,700	4,004
Totals	25,743,500	£1,786,169	312,867,200	£23,520,576
MANUFACTURED				
*†‡Tires and tubes				
Pneumatic				
Outer covers	.....	£91,285	.....	£2,569,787
Inner tubes	.....	10,200	.....	314,646
Solid tires	.....	9,919	.....	160,443
Boots and shoes *doz. pairs*	29,950	100,585	395,157	802,859
Other rubber manufactures	.....	135,799	.....	1,550,161
Totals	.....	£347,788	.....	£5,397,896

EXPORTS

UNMANUFACTURED				
Waste and reclaimed rubber	2,347,200	£26,156	24,906,100	£252,575
Rubber substitutes	54,900	1,354	601,900	14,201
Totals	2,402,100	£27,510	25,508,000	£266,776
MANUFACTURED				
‡*Tires and tubes				
Pneumatic				
Outer covers	.....	£253,753	.....	£2,661,986
Inner tubes	.....	52,985	.....	556,914
Solid tires	.....	35,016	.....	325,049
Boots and shoes *doz. pairs*	21,162	40,481	231,291	373,677
Other rubber manufactures	.....	261,865	.....	2,678,905
Totals	.....	£644,100	.....	£6,596,531

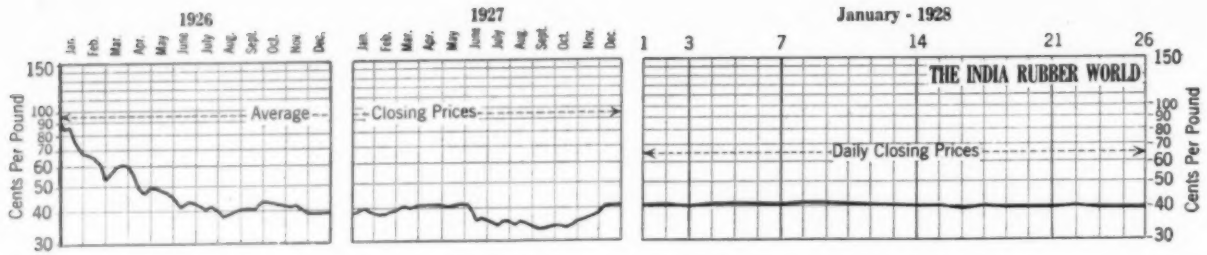
EXPORTS—COLONIAL AND FOREIGN

	November, 1927		Eleven Months Ended November, 1927	
UNMANUFACTURED				
Crude Rubber To—	Pounds	Value	Pounds	Value
Russia	1,466,100	£122,986	21,016,400	£1,912,187
Sweden, Norway and Denmark	229,000	23,268	2,264,100	208,761
Germany	2,698,700	202,685	29,236,700	2,316,061
Belgium	848,900	61,418	5,789,500	439,631
France	3,485,200	257,116	24,159,700	1,845,178
Spain	124,600	10,424	992,300	78,528
Italy	1,332,200	79,820	11,481,500	887,615
Other European countries	702,100	56,224	3,373,700	304,998
United States	9,911,700	693,370	68,159,000	5,212,148
Canada	.....	.....	47,400	4,091
Other countries	128,700	10,593	844,000	74,415
Totals	20,927,200	£1,517,904	167,364,300	£13,283,613
Waste and reclaimed rubber	39,600	839	304,600	8,336
Gutta percha and balata	86,900	6,946	592,500	55,333
Rubber substitutes	.....	.....	25,300	1,081
Totals	21,053,700	£1,525,689	168,286,700	£13,348,363
MANUFACTURED				
‡*Tires and tubes				
Pneumatic				
Outer covers	.....	£5,503	.....	£435,046
Inner tubes	.....	890	.....	60,911
Solid tires	.....	8	.....	9,698
Boots and shoes *doz. pairs*	756	1,706	12,134	26,777
Other rubber manufactures	.....	8,783	.....	99,525
Totals	.....	£16,890	.....	£631,957

*After April 12, 1927, tires and tubes imported or exported with complete vehicles or chassis, or fitted to wheels imported separately, are included under complete vehicles or parts.

†Motor cars, motorcycles, parts and accessories, liable to duty from Sept. 29, 1915, until Aug. 1, 1924, inclusive, and after July 1, 1925. Commercial vehicles, parts and accessories were exempt from duty until April 30, 1926, inclusive, and rubber tires and tubes until April 11, 1927, inclusive.

‡Tires and tubes included prior to April 12, 1927.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York Outside Market

IN THE January market spot ribbed smoked sheets were at 41 cents the first three days and for more than a week following were well above the 40 cent level. The sagging tendency then became more pronounced and the price declined to about 39⅞ cents. It held at that level for the remainder of the month. On January 3 the closing price of ribs was 41⅛ cents. On January 25 it was 39⅞ cents, a decline of 1¼ cents. On the latter date no general revival of interest had become manifest.

The week ended December 31, intervening between Christmas and New Year's holidays, was exceptionally quiet. A fair demand for spot rubber was noted at prices under those at which offerings were made. The factories assumed a waiting attitude regarding the purchase of the first quarter's requirements. The foreign markets were steady and no distressed lots were being offered. There was a lack of inclination of holders of rubber to sell until after the first of the year.

The market of the week terminated January 7 exhibited little if any greater activity than the week previous. Factory interest was meager with occasional inquiries for spot and nearby lots. There is plenty of rubber available, but it was not being pressed on the market. No distressed lots were to be had. The far eastern markets held fairly steady. Shipment rubber varied only about ⅛ cent all the week.

The week closed January 14 showed a certain amount of interest, due to the presence in New York of many rubber buyers attracted by the automobile show. Prices ruled firmer early in the week, then eased off slightly. Little buying was reported although scattered spot lots were placed. Publication of the statistical report of the Rubber Association of America caused the market to turn easy and prices declined. Buying support appeared on the exchange and recovery of prices resulted. Further advance was occasioned by urgent short coverings.

The week ended January 21 was uniformly dull with small fluctuations either way in prices. There was some spasmodic factory buying confined to small tonnages. Offerings from the Far East were few and small in amount. Factories seemed to be in no special need of rubber and were willing to withhold their purchases for spring needs on the chance of the possibility of further declines in the market.

Dull conditions prevailed early in the next week. On January 23, spot closed at 40 cents and on the 25th was 39⅞ cents.

Paras were very quiet and unsought by consumers the whole month. Balatas were very dull and steady with all grades available.

Importations of crude rubber in December were 29,062 tons compared with 32,903 tons one year ago. Plantation arrivals for December were 26,057 tons compared with 30,689 tons one year ago. Total importations of plantation rubber for 12 months ended December 31, 1927, were 405,543 tons, compared with 386,748 tons for the corresponding period of 1926. Total importations of all grades of rubber for the 12 months ended December 31, 1927, were 432,316 tons compared with the 411,962 tons for the corresponding period of 1926.

RUBBER AFLOAT TO THE UNITED STATES

Week Ended 1927	British Malaya	Ceylon	Netherland East Indies	London and Liverpool	Totals
December 31	4,810	719	1,988	268	7,785
1928					
January 7	4,569	357	1,828	158	6,912
January 14	4,546	475	1,200	302	6,523
January 21	4,654	1,290	2,518	608	9,070

Crude rubber imports into the United States during 1927, according to figures compiled by the Rubber Association of America, Inc., totaled 432,315 long tons which tops the 1926 figure of 411,962 long tons. Plantation rubber from the East Indies, the Malay States and the Straits Settlements amounted to 405,543 long tons, Para rubber from South America (Brazil), 17,576 long tons and rubber from all other sources, 9,197 long tons.

April was the largest import month of the year when 48,673 long tons were brought in, and February the lowest, only 27,600 long tons being entered for the entire month.

New York led as the port of entry with 364,170 long tons and Boston second with a total of 16,953 long tons.

Imports of rubber during December were the lowest of any month excepting February, the total having been only 29,062 tons. That compared with 32,903 tons in December, 1926.

Stocks on hand registered a substantial gain last year. The total

New York Outside Market—Spot Closing Rubber Prices—Cents Per Pound

Plantations Sheet	December, 1927 *26	27	28	29	30	*31	January, 1928 *2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21
Ribbed smoked	....	41⅛	41⅛	41⅛	41⅛	....	....	41⅛	41	41	40⅜	40⅜	40⅜	40⅜	40⅛	40⅛	40⅜	40⅜	40⅜	39⅜	40	39⅞	39⅞	39⅞
Crepe																								
First latex	....	41¼	41½	41½	41⅜	....	....	41¼	41⅛	41	40⅝	40⅜	40⅝	40½	40¼	40½	40⅜	40⅜	40¼	39⅞	40⅛	40	40	40⅛
No. 2 blanket	....	38¼	39	39	39	....	....	39	38⅞	39	38⅝	38⅜	38½	38¼	37⅞	38¼	38⅜	38⅜	38	37⅜	37⅞	38	38	38
No. 3 blanket	....	38⅛	38½	38½	38½	....	....	38½	38¼	38¼	38	37⅞	37⅞	37⅜	37⅜	37⅝	37½	37½	37¼	37⅛	37⅜	37¼	37⅛	37¼
No. 4 blanket	....	37½	37⅜	37¼	37⅛	....	....	37⅛	37¼	37¼	37½	37¼	37¼	37	36⅞	37⅛	37⅛	37⅛	36½	36⅜	36⅞	36¾	36⅝	36¾
Thin clean brown	....	38⅛	38½	38½	38⅜	....	....	38⅜	38⅛	38¼	38	37¾	38	37⅝	37⅜	37⅜	37⅜	37⅜	37¼	37⅛	37¼	37⅛	37⅝	37¼
Rolled brown	....	34⅛	34⅜	34⅜	34⅛	....	....	34⅛	34½	34½	33⅝	33¾	33½	33½	33¼	33⅜	33⅜	33⅜	33¼	33	33¼	33¼	33	33
Off latex	....	40¾	41	41	40¾	....	....	41	40⅞	40⅞	40⅜	40⅝	40⅝	40⅝	40	40⅛	40⅛	40⅛	39⅞	39⅝	39⅞	39¾	39¾	39⅛

* Holiday.

at the end of December was 100,130 tons. That compared with 72,509 tons at the end of 1926. The gain of 27,621 tons was equivalent to slightly more than 38 per cent. On the other hand the stocks afloat at the end of 1927 amounted to 47,939 tons, against 52,019 tons at the end of the previous year.

London

The rubber market in London during the last week of December and the first three of January was generally quiet and featureless. Prices declined from 20 pence on December 28 to 19¼ pence on January 21.

The market report of Faulkner, Winsor, London, issued December, presented the following interesting observations on the 1928 outlook:

The market is entering upon the new year with high hopes of a rapid reduction of world stocks in consequence of a record American consumption next spring and the effects of the new assessment regulations in Malaya. What standard production those regulations will result in is not as yet known, but the figure of 310,000 tons strikes a fair average of the estimates circulated by the various authorities on the subject. A calculation on the basis of this standard indicates a world production for the current restriction year of something like 575,000 tons, taking into account the probable increase of supplies from non-restricted sources.

Should the values remain at or above the present level for any length of time, that figure is almost certain to be exceeded, for such values must necessarily act as an extraordinary stimulant on unrestricted producers and offer irresistible temptations for the utilization of every possible opportunity of evading restriction regulations.

As to 1928 consumption, it may run to anything from 585,000 tons to 620,000 tons, according to the extent to which the predictions of popular business prophets of record American prosperity conditions next year come true. The usual seasonal improvement in tire manufacturing activities due to begin within a few weeks is almost certain to be accentuated by the new Ford requirements, and at the moment chances seem in favor of a deficiency between world shipments and world consumption during the first six months of 1928 of some 30,000 tons. It is, indeed, in anticipation of that deficiency that speculative buying has been ruling the market these last two months.

Tentative estimate of world production is given below at a 60 per cent quota rate for restricted areas, for the years 1929 to 1932 (in tons):

	1929	1930	1931	1932
Long tons	605,000	635,000	665,000	680,000

These figures rather point to the probability that for the next five years an average quota of 70 per cent would amply suffice for satisfying demands. That does not, of course, mean that the quota might not temporarily rise above that figure, for the inertia which is the most dangerous characteristics of the restriction scheme in its present form would permit of stocks some day decreasing to a level that would encourage a corner and a short-lived rise of values to a point high enough for causing the temporary release of a 100 per cent quota.

The weekly record of London stocks was as follows: December 31, 63,207 tons; January 7, 64,360 tons; January 14, 65,524 tons; January 21, 65,450 tons.

Singapore

The market in Singapore from December 28 to January 25 was generally dull. Sellers prices declined for spot from 20 pence, on December 28 to 18⅞ pence, on January 18. Following this date there was an upward trend carrying the spot prices on January 25 to 19¼ pence.

"BENEFITING BY THE NEW METHODS OF SEED SELECTION AND bud-grafting, future plantings will be able to compete at a greatly reduced cost with the four and a half million acres already planted. Large profits are being made by old well managed estates today, and there is still greater opportunity for American capital to enter the field on a large scale and cultivate rubber by approved scientific methods."—Fred T. P. Waterhouse.

MONTHLY EXPORTS OF RUBBER PRODUCTS FELL OFF DURING November, which, however, leads the low month of January by more than $94,400.

New York Quotations

Following are the New York spot and future rubber quotations for one year ago, one month ago and January 26, the curent date:

Plantation Hevea	January 25, 1927	December 27, 1927	January 26, 1928
Rubber latex (Hevea)..gal.	$1.50 @	$1.50 @	$1.50 @
CREPE			
First latex, spot	.38¾@	.41 @	.40¼@.40½
January	.39 @	.41 @	.40¼@
February-March	.39¼@	.41⅞@	.40½@
April-June	.40 @	.42½@	.41¼@
Off latex, spot	.38¼@	.40½@	.40 @
Amber No. 2, spot	.36¾@.36½	.39 @	.37¾@.38
January	.36¼@.36½	.39 @	.38 @
February-March	.36¼@.36½	.39¼@	.37¾@
April-June	.37 @.40¼	.40¼@	.38¼@
Amber No. 3, spot	.35¾@.36	.38¾@	.37⅛@.37½
Brown, thin, clean	.35 @.35½	.38 @	.37¼@
Brown, specky	.35 @.35¼	.37 @	.37 @
Brown, roll	.31½@.32	.34¼@	.33½@.33½
Sole crepe	.60 @	@	@
Sheet			
Ribbed, smoked, spot	.38½@.38¾	.40⅞@	.40 @.40⅛
January	.38½@	.40⅞@	.40⅛@.40¼
February-March	.38¾@.39	.41¼@	.40⅜@
April-June	.39½@.40	.42¼@	.41⅛@.41¼
East Indian			
PONTIANAK			
Banjermassin	.12 @	.09½@.10	.09 @.10
Pressed block	.23½@	.15 @	.15 @
Sarawak	@	.10 @	.10 @
South American			
PARAS			
Upriver, fine	.29 @	.33 @	.30¾@
Upriver, fine	@	*.42¼@	*.47¾@
Upriver, medium	.26 @	.29 @	.28 @
Upriver, coarse	.22 @	.27½@	.26 @
Upriver, coarse	*.33¼@	*.38½@	*.37¾@
Islands, fine	.25½@	.29 @	.29 @
Islands, fine	@	*.41 @	*.40 @
Acre, Bolivian, fine	.30 @	.33½@	.31½@
Acre, Bolivian, fine	*.41 @	*.43 @	@
Beni, Bolivian	.30 @	.34½@	.32¼@
Madeira, fine	.30 @	.33 @	.31 @
Peruvian, fine	.28 @	.32 @	.30½@
Tapajos, fine	.27 @	.31½@	.29¾@
CAUCHO			
Upper Caucho ball	.23 @	.27½@	.26½@
Upper Caucho ball	*.34 @	*.38½@	*.38 @
Lower Caucho ball	.21 @	.26 @	.24¾@
Maniçobas			
Ceará negro heads	.24 @	.25 @	.25 @
Ceará scrap	.14 @	.16 @	.16 @
Manicoba, 30% guaranteed	.28 @	.30 @	.30 @
Mangabiera, thin sheet	.28 @	.32 @	.32 @
Centrals			
Central scrap	.23 @	.27½@	.25 @
Central wet sheet	.17 @	.20 @	.20 @
Corinto scrap	.23 @	.27½@	.25 @
Esmeralda sausage	.23 @	.27½@	.25 @
Guayule			
Duro, washed and dried	.31 @	.32½@	.32 @
Gutta Percha			
Gutta Siak	.26½@	.22 @	.22 @
Gutta Soh	@	.35 @	.38 @
Gutta Macassar	3.00 @	3.00 @	2.80 @ 3.00
Balata			
Block, Ciudad Bolivar	.39½@	.45 @	.43½@
Colombia	.38 @	.44 @.45	.43 @.44
Manaos block	@	.47 @	.46 @
Panama	@	.44 @	.42 @
Surinam, sheet	.68 @	.56 @	.56 @.57
Amber	.72 @	.60 @	.60 @.61
Chicle			
Honduras	‡.56 @.60	‡.68 @	‡.65 @
Yucatan, fine	‡.56 @.60	‡.68 @	‡.65 @

* Washed and dried crepe. Shipment from Brazil.
† Nominal. ‡ Duty paid.

Low and High New York Spot Prices

Plantations	January 1928*	January 1927	January 1926
First latex crepe	$0.40 @$0.41¼	$0.38 @$0.41½	$0.67@$0.92½
Smoked sheet, ribbed	.39¾@ .41¼	.37¾@ .41½	.64@ .88
Paras			
Upriver, fine	.31 @ .33½	.29 @ .34¼	.60@ .83
Upriver, coarse	.25 @ .26¼	.22 @ .25	.47@ .64
Islands, fine		.26 @ .31	.49@ .68

*Figured to January 21, 1928.

The Rubber Exchange of New York, Inc.

Transactions on the Rubber Exchange between December 27, 1927, and January 21, 1928, inclusive, were 5,037 contracts or 12,592½ tons, compared with 14,254 contracts or 35,635 tons in the period from November 28 to December 24. The spread between high and low each week for all positions was less than 0.5 cent, except in two instances, when it reached 0.7 cent. The market of the month was generally quiet. Business transacted was only a third of that done in December.

Three important topics served to lend interest to the otherwise dull situation: (1) The British producers of the Federated Malay States met and agreed in principle that plantations should combine into larger units and that cooperative selling should either supplement or displace the Stevenson plan of restriction; (2) the introduction into the House of Representatives of the Newton bill which would authorize the formation of American trade associations to make collective purchases of rubber and other raw materials for which the United States depends upon foreign sources of supply; (3) the expected announcement by the British Colonial Office whether any change of regulations will be made in the matter of the restriction of exports of plantation rubber for the quarter beginning February 1.

If the Newton bill becomes law the associations authorized would buy rubber cooperatively at lowest prices for distribution among their members according to consumption requirements.

The market for the week ended December 31 was listless, with prices steady. A generally bullish tendency prevailed. Any effort to reduce prices might be followed by even more drastic curtailment of production, it was thought.

The market for the week closed January 7 was also quiet and steady. Prices declined about ½ cent. Many rumors were current of mergers of rubber manufacturing companies, all of them baseless, however.

The week terminated January 14 was as uneventful as the two preceding weeks. The net price change was about 0.2 cents a pound below the close of the previous week. There was an absence of demand from manufacturers, who were waiting for a definite trend on the part of the automobile industry to be revealed at the New York Automobile Show.

During the week ended January 21 the market was irregular. Buying support in New York counteracted depressions in London prices. The market closed about 0.6 cent lower on the week.

The following week the market continued with no appreciable increase of interest on the part of manufacturers, and prices were firm and steady at unchanged levels.

Paul Elbogen & Co., Inc., referring to cooperative buying of rubber, made this statement:

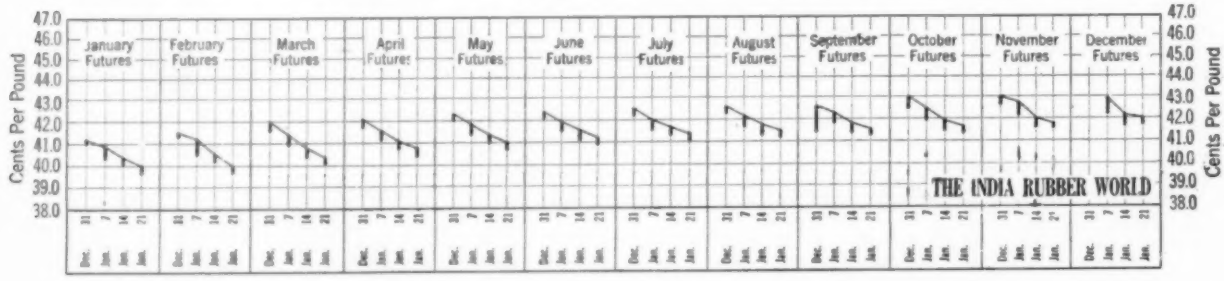
"The rubber agency is estimated to hold approximately 25,000 tons of rubber at about these levels. Naturally they therefore would not care to see prices decline from these levels. On the other hand, its holdings of rubber are intended to be used as a weapon against foreign rubber control.

"It is therefore plainly evident that the possibility of an advance in crude rubber is still in the background. A sharp upturn in prices can be brought about by a variety of circumstances. Of course the paramount factor would be the state of the automobile industry throughout the world for the coming year and also important is what possible further restrictions or combinations of rubber producers may do to put up the price by concerted action.

"Now that rubber has had a fairly healthy setback, we view the future with increasing confidence."

W. S. Hammesfahr, a member of the Rubber Exchange of New York, recently returned from an extended trip to the leading European rubber markets, has expressed belief that "American

New York Rubber Exchange—High and Low Monthly Futures—Cents Per Pound



The Rubber Exchange of New York, Inc.

Daily Market Futures—Ribbed Smoked Sheets—Closing Prices—Cents per Pound

	December, 1927						January, 1928													
	27	28	29	30	31	2*	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21
1928																							
January	41.0	41.2	41.2	41.1	41.2	...	40.9	40.8	40.7	40.6	40.3	40.4	40.2	40.0	40.1	40.2	40.2	39.9	39.7	40.0	39.8	39.9	40.0
February	41.4	41.5	41.5	41.3	41.5	...	41.2	41.1	40.9	40.6	40.5	40.6	40.4	40.2	40.2	40.3	40.3	39.9	39.7	39.9	40.0	39.9	40.0
March	41.8	42.0	41.9	41.6	41.6	...	41.4	41.3	41.2	41.0	40.9	40.8	40.7	40.4	40.7	40.7	40.7	40.3	40.1	40.4	40.3	40.2	40.4
April	41.9	42.1	42.1	41.8	41.7	...	41.6	41.5	41.4	41.3	41.2	41.1	40.9	40.7	41.6	41.0	41.0	40.6	40.5	40.8	40.5	40.4	40.7
May	42.1	42.3	42.2	42.0	42.0	...	41.8	41.7	41.6	41.5	41.4	41.4	41.2	41.0	41.4	41.4	41.4	40.9	40.8	41.0	40.8	40.7	41.0
June	42.1	42.4	42.4	42.2	42.2	...	41.9	41.9	41.8	41.7	41.6	41.5	41.3	41.1	41.5	41.6	41.4	41.1	41.0	41.2	40.9	41.0	41.2
July	42.2	42.5	42.5	42.3	42.3	...	41.9	42.0	41.9	41.7	41.6	41.5	41.4	41.3	41.6	41.7	41.6	41.2	41.1	41.4	41.1	41.0	41.3
August	42.3	42.6	42.6	42.5	42.4	...	42.1	42.2	42.0	41.9	41.7	41.6	41.5	41.3	41.7	41.8	41.7	41.3	41.2	41.5	41.2	41.2	41.4
September	41.4	42.7	42.6	42.6	42.5	...	42.3	42.3	42.2	42.0	41.8	41.7	41.5	41.4	41.7	41.8	41.7	41.4	41.3	41.6	41.3	41.3	41.6
October	42.5	43.0	42.8	42.8	42.8	...	42.5	42.5	42.3	42.0	41.9	41.8	41.7	41.5	41.9	41.9	41.8	41.5	41.5	41.7	41.4	41.5	41.7
November	42.6	43.2	43.0	43.0	43.0	...	42.7	42.6	42.5	42.2	42.1	41.9	41.8	41.6	42.0	42.0	42.0	41.6	41.7	41.8	41.6	41.6	41.8
December	...	...	...	...	...	...	42.9	42.6	42.6	42.2	42.2	42.0	41.9	41.7	42.1	42.1	42.1	41.7	41.7	42.0	41.8	41.8	42.0

*Holiday.

manufacturers have nothing to fear from the proposed alliance of British and Dutch rubber growers. British planters would like such an arrangement, but a majority of the Dutch producers do not favor the proposal."

The following new members were admitted the past month to the Rubber Exchange: Robert H. Deneke, A. Runge & Co., and Otto Ulrik, Faulkner & Winsor (Rubber), Ltd., both of London; Edward B. Germain, Dunlop Tire & Rubber Corp., Buffalo., and Hutcheson Page, Rogers Brown & Crocker Bros., Inc.; Tudor J. Simpkins, John L. Handy, Inc.; Percy S. Weeks, Weeks, Handy & Co., Inc., and Carroll V. Geran, all four of New York.

H. W. French, H. W. French Co., Inc., purchased, for another, an extra membership of Otto Zieseniss, of the Paris branch of H. Hentz & Co., for $6,500. This is the highest price ever paid for a rubber exchange membership and is an advance of $500 over the last previous sale.

Two members were suspended for one week. These are the first suspensions in the history of the Rubber Exchange and were made for a technical violation of the rules.

Reclaimed Rubber Market

The demand for reclaim was renewed in good volume following the holidays and annual inventory period. Many orders are on the hand-to-mouth basis and essentially the same is true of the reclaimers in regard to their supplies of scrap. The larger users of reclaim, however, are placing commitments for reclaim to cover their needs for the near future.

The outlook for 1928 business indicates the use of a liberal increase in the general consumption of reclaim, due in part to the growth of motor vehicle production and also to the fact that tires of the lowest grade have demonstrated unusual wearing value under present day motoring conditions.

The problem of tread wear of balloon tires is apparently being solved in part for light-weight cars making high speed over hard roads by the more liberal use of reclaim in tread stocks. Quotations are unchanged except in the case of miscellaneous red grade which has advanced one-half cent.

New York Quotations

January 26, 1928

	Specific Gravity	Price per Pound
Auto Tire		
Black	1.21	$0.08¼ @ $0.08¾
Black, washed	1.18	.10¼ @ .10¾
Black selected tires	1.18	.08¾ @ .09
Dark gray	1.35	.11½ @ .12
Light gray	1.38	.13 @ .13¼
White	1.40	.15 @ .15½
High Tensile		
Super-reclaim, No. 1 black	1.20	.17¾ @ .18¼
No. 2 black	1.20	.14 @ .14½
High tensile red	1.20	.16¼ @ .16½
Shoe		
Unwashed	1.60	.08 @ .08¼
Washed	1.50	.10¼ @ .10¾
Tube		
No. 1	1.00	.17 @ .17½
No. 2	1.10	.14¼ @ .14½
Miscellaneous		
Red	1.35	.14½ @ .15
Truck tire, heavy gravity	1.55	.07½ @ .07¾
Truck tire, light gravity	1.40	.08 @ .08¼
Mechanical blends	1.60	.07 @ .08

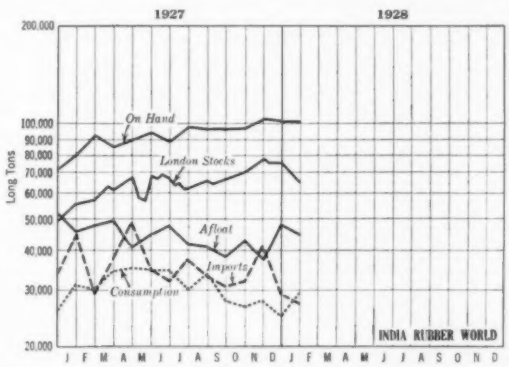
RUBBER SPRAYED FOR FLOORING

Application has been made for a British patent covering a process by which latex may be used in forming a rubber flooring on a cement or other foundation. The fluid is mixed with fillers, colors, anti-oxidants, and vulcanizing agents and sprayed with a heated gas to effect evaporation. Marbling and other effects may be produced by varying the composition during repeated sprayings. The process may also be used for wall coverings, roofing and paving material, etc.—K. D. P., Ltd., 28 Fenchurch St., London.

Imports, Consumption and Stocks

The accompanying graph covers the crude rubber supply, consumption and stocks for 1927 and January of 1928. Stocks on hand in the United States December 31, 1927, were substantially the same as that on November 30 as had been estimated on the latter date. Imports and consumption in January, 1928, are estimated at 27,000 tons and 29,000 tons respectively. London stocks between December 17 and January 21 showed a net increase of 689 tons.

The increase of London stocks was very steady throughout 1927. The only notable decrease occurred during May. In that month 10,000 tons were withdrawn but the stock regained the



U. S. Imports, Consumption and Stocks

level of 67,000 tons at the end of May and the increase continued, with a moderate sag in July, until the close of the year. The net advance of London stocks for the year was 5,421 tons. Stocks in the Far East did not vary greatly from month to month and averaged about 24,000 tons.

Stocks afloat to the United States approximated 50,000 tons monthly for the first 3 months and for the remainder of the year ran about 40,000 tons except in July when they rose to about 48,000 tons. Stocks afloat in January are estimated at 45,000 tons.

The high level of consumption covered the period from March 1 to July 1 and averaged 35,000 tons. Consumption in August again approached this tonnage, declined to 26,000 in October and November and reached the 30,000 ton level for December.

The statistical position exhibited in the graph for January, 1928, is favorable to the consumer with the price of ribs virtually stabilized at about 40 cents.

UNITED STATES CRUDE RUBBER IMPORTS, CONSUMPTION AND STOCKS

			Stocks			Singapore and
1925	Imports Tons	Consumption Tons	On Hand† Tons	Afloat† Tons	London Tons	Penang Tons†
Twelve months.	384,837	389,136	51,000*	48,000*	.....	.....
1926						
Twelve months.	411,900	358,415	72,510*	52,019*	.....	.....
1927						
January	45,736	31,500	76,171	45,218	54,786	26,443
February	29,446	29,000	76,000	48,000	56,962	26,766
March	39,500	36,100	91,086	49,597	63,167	27,844
April	48,700	35,900	92,800	39,000	67,034	24,543
May	36,569	34,590	94,600	44,200	56,668	25,133
June	33,194	33,800	89,250	47,233	64,486	21,898
July	38,667	29,219	98,469	40,587	63,626	18,674
August	33,068	33,460	96,148	40,937	64,842	21,764
September	32,798	27,214	97,829	37,966	68,519	25,178
October	31,310	26,791	97,452	42,804	69,660	25,790
November	40,984	26,792	101,034	37,076	65,869	25,798
December	29,062	25,381	100,130	47,939	63,207	.....
1928						
January (est.)	27,000	29,000	100,000	45,000	.....	.....

*December 31.
†The first of each month.

DURING 1926 ICELAND IMPORTED 959 AUTOMOBILE CASINGS FROM the United States, the value of which was $172,289.

The Market for Rubber Scrap

Collections of rubber scrap continue fairly steady due to the prevailing mild weather. Business in January was very active and the demand covered all grades.

AIR BRAKE HOSE. Air brake hose continues to be in good demand. Prices are unchanged.

BOOTS AND SHOES. These grades are quiet with quotations nominal and unchanged.

INNER TUBES. Scrap inner tubes of all grades are in very good demand. The export trade with European countries is exceptionally good.

MECHANICAL GOODS. The movement of these goods is fair in amount. Black scrap is rather quiet. There have been slight advances in a few grades otherwise the quotations are unchanged from a month ago.

TIRES. The demand for tires was very good early in January but later fell off in some degree. Tire collections are coming forward in good volume.

Quotations for Carload Lots

January 26, 1928

Boots and Shoes			
Boots and shoes, black	lb.	$0.01⅞ @	$0.02
Red and white	lb.	.01 @	.0115
Trimmed arctics, black	lb.	.00¾ @	.01
Untrimmed arctics	lb.	.00¾ @	.01
Tennis shoes and soles	lb.	.01 @	
Hard Rubber			
No. 1 hard rubber	lb.	.09½ @	.10
Battery jars, black compound	lb.	.01 @	.01½
Inner Tubes			
No. 1, floating	lb.	.08¼ @	.09
No. 2, compounded	lb.	.06⅛ @	.06¼
Red	lb.	.07½ @	.08
Mixed tubes	lb.	.06 @	.06⅛
Mechanicals			
Mixed black scrap	lb.	.00¼ @	.01
Heels	lb.	.00½ @	.00⅝
Hose, air brake	ton	35.00 @	38.00
regular soft	ton	15.00 @	17.00
No. 1 red	lb.	.02 @	.02½
No. 2 red	lb.	.01 @	.01¼
White, druggists' sundries	lb.	.02½ @	.03
Mechanical	lb.	.01½ @	.01⅝
Tires			
Pneumatic Standard—			
Mixed auto tires with beads	ton	27.00	@28.00
Beadless	ton	37.00	@38.00
White auto tires with beads	ton	40.00	@42.00
Beadless	ton	50.00	@52.00
Mixed auto peelings	ton	39.00	@40.00
Solid—			
Mixed motor truck, clean	ton	26.00	@28.00

Ceylon Rubber Exports

January 1 to October 31, 1927

	Tons
To United Kingdom	13,015.24
Continent	2,775.13
Australia	1,318.02
America	29,462.75
Egypt	9.00
Africa	81.57
India	22.48
Japan	153.95
Total	46,838.14
For the same period last year	47,790.41

ANNUAL EXPORTS 1921-1926

	Tons
For the year 1926	58,799.56
1925	45,697.19
1924	37,351.13
1923	37,111.88
1922	47,367.14
1921	40,210.31

AUTOMOBILE CASINGS AND SOLID TIRE EXPORTS SHOW A GAIN OF 87.3 per cent, for January-June, 1927, according to *Our World Trade*, over a like period for 1926, the total number exported increasing from 789,000 to 1,478,000. Pneumatic tubes show an increase of 38.3 per cent, the figures being 582,000 for 1926 and 805,000 for 1927.

Rims Inspected and Approved by the Tire & Rim Association of America

Rim Size	12 Mos. 1926 Number	12 Mos. 1926 Per Cent	12 Mos. 1927 Number	12 Mos. 1927 Per Cent
Motorcycle				
28 x 2½	.....	....	755	0.0
24 x 3	23,324	0.1	39,745	0.2
26 x 3	86,231	0.4	42,963	0.2
28 x 3	4,990	0.0	5,489	0.0
Total	114,545	0.5	88,952	0.4
Clincher				
30 x 3	2,302	0.0	.....	....
30 x 3½	2,562,763	10.6	1,174,170	5.9
31 x 4	63,061	0.3	19,985	0.1
Total	2,628,126	10.9	1,194,155	6.0
18" Balloon				
25 x 3½–18	733	0.0	217	0.0
26 x 4 –18	149,371	0.6	821,837	4.1
27 x 4½–18	19,479	0.1	53,120	0.3
28 x 5 –18	.....	....	304	0.0
30 x 6 –18	.....	....	72	0.0
Total	169,583	0.7	875,550	4.4
19" Balloon				
26 x 3½–19	215,630	0.9	607,911	3.0
27 x 4 –19	13,126	0.1	1,088,440	5.4
28 x 4½–19	808	0.0	481,240	2.4
29 x 5 –19	189	0.0	1,915	0.0
Total	229,753	1.0	2,179,506	10.8
20" Balloon				
27 x 3½–20	8,238	0.0	350,913	1.8
28 x 4 –20	3,666,326	15.1	2,865,219	14.3
29 x 4½–20	353,159	1.5	423,945	2.8
30 x 5 –20	243,071	1.1	436,998	2.2
32 x 6 –20	.....	....	71,956	0.4
Total	4,270,794	17.7	4,149,031	21.5
21" Balloon				
28 x 3½–21	10,126,667	41.5	5,573,981	27.1
2.5–21—D	.....	....	237,024	1.2
29 x 4 –21	2,036,736	8.4	1,822,370	9.1
30 x 4½–21	1,682,419	6.3	1,140,841	5.7
31 x 5 –21	401,829	1.7	112,187	0.6
33 x 6 –21	153,939	0.6	42,641	0.2
Total	14,401,580	58.5	8,929,094	43.9
22" Balloon				
29 x 3½–22	254	0.0	404	0.0
30 x 4 –22	12,260	0.1	9,046	0.0
31 x 4½–22	33,363	0.1	10,548	0.1
Total	45,877	0.2	19,998	0.1
High Pressure				
30 x 3½–23	191,342	0.8	116,727	0.6
31 x 4 –23	23,323	0.1	6,109	0.0
32 x 4½–23	429,304	1.8	182,558	0.9
32 x 4 –24	185,557	0.8	157,666	0.8
33 x 4½–24	2,250	0.0	2,176	0.0
32 x 3½–25	14,678	0.1	14,997	0.1
33 x 4 –25	19,484	0.1	10,553	0.1
34 x 4½–25	168	0.0	24,085	0.1
34 x 4 –26	34,317	0.1	.....	....
Total	900,423	3.8	514,871	2.6
20" Truck				
30 x 5–20	1,006,206	4.2	1,560,619	7.8
32 x 6–20	206,892	0.9	279,952	1.4
34 x 7–20	56,885	0.2	73,788	0.4
36 x 8–20	13,971	0.1	21,682	0.1
40 x 10–20	485	0.0	2,056	0.0
Total	1,284,439	5.4	1,938,097	9.7
22" Truck				
36 x 7–22	1,817	0.0	2,425	0.0
38 x 8–22	.....	....	30	0.0
Total	1,817	0.0	2,455	0.0
24" Truck				
34 x 5–24	49,847	0.2	38,687	0.2
36 x 6–24	73,798	0.3	43,344	0.2
38 x 7–24	17,623	0.1	22,961	0.1
40 x 8–24	10,252	0.0	14,815	0.1
44 x 10–24	1,156	0.0	539	0.0
Total	152,676	0.6	120,346	0.6
Grand total	24,199,613	....	20,012,055	....

Compounding Ingredients Market

THE demand for rubber compounding ingredients of all grades revived in good volume following the opening of the new year. The tendency is to limit commitments to actual or nearby needs. In view of the heavy output of goods in the tire and tube division of the industry the consumption of ingredients is heavy, continuous and of increasing tonnage.

ACCELERATORS. The more popular accelerators of the rapid or extra rapid varieties are very active. They are essential to manufacturers economically as well as technically and competition is hardly possible without them.

ANTI-OXIDANTS. The number of these available for rubber work is somewhat limited but all are excellent and indeed vital to the life of rubber goods whether of high or low grade.

BENZOL. The production of benzol has for some weeks been at from 40 to 50 per cent of normal. The demand has steadily improved and contracts are said to indicate business in good volume for 1928.

CARBON BLACK. This highly indispensable reinforcing ingredient is being booked in heavy contracts for tire and other rubber goods production at last year's prices. Consumers are in the market in a large way and prices are steady.

CLAY. As a cheap reinforcing material clay continues to meet an important demand in the trade. Prices are low and steady.

DEGRAS. This mild and inert softener is attracting attention because of its technical effect and very low volume cost.

LITHARGE. Prices remain firm and unchanged. The routine demand early in the month has since gained in volume.

LITHOPONE. This is in good demand and large tonnage is said to be already under contract for this year's needs.

MINERAL RUBBER. This is as standard as rubber particularly in the cheaper lines of goods and in that respect functions equally well with rubber or reclaim to facilitate mixing and easy machining quality. The goods and the prices are standard.

SOLVENT NAPHTHA. The production of this material, like that of benzol, has latterly been at from 40-50 per cent of normal. The demand, however, has rated as subnormal.

STEARIC ACID. This material has become the standard for stabilizing the cure of rubber goods of every quality. In effect it is virtually as essential as sulphur and should always accompany it in compounding. The demand is improving and the price is firm.

ZINC OXIDE. The 1928 outlook for zinc oxide is reported optimistic. Heavy tonnages are under contract. The price is steady and unchanged.

New York Quotations

January 26, 1928

Accelerators, Inorganic

Lead, carbonate	lb.	$0.08½	@
Lead, red	lb.	.10	@
sublimed white	lb.	.07¾	@
sublimed blue	lb.	.07¾	@
super-sublimed white lead	lb.	.08¼	@
Lime, R. M. hydrated	ton	12.50	@
Litharge	lb.	.09	@
Magnesia cal., light	lb.	.05	@
calcined, extra light	lb.	.30	@
calcined, heavy	ton		@
magnesium, carb., light	lb.	.06	@ .07
Orange mineral A.A.A.	lb.	.12	@

Accelerators, Organic

A-7	lb.	.65	@ .85
A-11	lb.	.70	@ .90
A-16	lb.	.65	@ .85
A-19	lb.	.70	@ .90
A-20	lb.	.64	@ .75
Aldehyde ammonia	lb.	.65	@ .70
B. B.	lb.		@
Captax	lb.		@
Crylene, hard form	lb.		@
Paste	lb.		@
Di-ortho-tolylguanidine	lb.	.80	@ .85
Diphenyl guanidine	lb.	.64	@ .68
Ethylidine aniline	lb.	.60	@ .65
Formaldehyde aniline	lb.	.38	@ .42
Grasselerator 102	lb.	.62½	@ .67½
552	lb.	4.45	@
808	lb.	1.05	@ 1.35
833	lb.	1.55	@ 1.75
Heptene	lb.	.55	@
Hexamethylene tetramine	lb.	.62½	@ .67½
Methylene dianiline	lb.	.37	@
Monex	lb.	3.25	@
No. 999 lead oleate	lb.	.13	@ .155
Piperidine pentamethylene dithio carbamate	lb.	4.45	@ 4.60
R. & H. 40	lb.	.50	@ .55
50	lb.	.50	@ .55
Safex	lb.	1.20	@ 1.25
Super-sulphur, No. 1	lb.		@
No. 2	lb.		@
Tensilac No. 39	lb.	.55	@ .60
No. 41	lb.	.65	@ .70
Thermlo F	lb.	.50	@ .55
Thionex	lb.	3.25	@
Thiocarbanilid	lb.	.26	@ .28½
Trimene	lb.	.75	@
base	lb.	1.20	@
Triphenylguanidine	lb.	.65	@ .70
Tuads	lb.		@
Vulcanex	lb.	.70	@
Vulcanol	lb.	1.03	@
Vulcone	lb.	.70	@
ZBX	lb.	2.50	@
Z-88	lb.	.75	@ 1.00
Zimate	lb.		@

Acids

Acetic 28% (bbls.)	100 lbs.	3.37½	@ 3.62½
glacial (carboys)	100 lbs.	12.41	@12.66
Sulphuric, 66°	100 lbs	1.60	@

Alkalies

Caustic soda, solid	lb.	$0.02¾	@

Anti-Oxidants

Age-Rite, powder	lb.		@
resin	lb.		@
Antox	lb.		@
Neozone	lb.	.74	@
V. G. B.	lb.		@

Colors

BLACK

Bone	lb.	.05½	@ .10
Carbon (see Comp. Ing.)			
A. & W. nonfil No. 1	lb.	.40	@
Drop	lb.	.06	@ .10
Lampblack (commercial)	lb.	.09	@

BLUE

A. & W. blue	lb.	1.25	@ 5.00
Du Pont, N.	100 lbs.	1.35	@
Marine, A. C.	100 lbs.	1.30	@
5 R.	100 lbs.	1.00	@
2 G.	100 lbs.	.90	@
Huber Brilliant	lb.	4.20	@
Prussian	lb.	.31	@ .35
Ultramarine	lb.	.06	@ .30

BROWN

Huber Mocha	lb.	1.60	@
Sienna, Italian, raw	lb.	.05	@ .12½

GREEN

A. & W. green	lb.	1.25	@ 3.00
Chrome, light	lb.	.27	@ .31
medium	lb.	.28	@ .31
dark	lb.	.30	@ .33
Du Pont, A. C.	100 lbs.	3.00	@
4 G.	100 lbs.	.60	@
G. L.	100 lbs.	.30	@
Y. L.	100 lbs.	.75	@
Huber Brilliant	lb.	3.85	@
Oxide of chromium	lb.	.38	@

ORANGE

Du Pont, 2 R	100 lbs.	1.40	@
R. X.	100 lbs.	1.30	@
Y. O.	100 lbs.	1.60	@
Huber Persian	lb.	.50	@

RED

A. & W. red	lb.	.75	@ 3.50
purple	lb.	2.00	@ 4.00
Antimony, golden, No. 40	lb.		@
No. 60	lb.		@
golden 15/17%	lb	.16	@ .20
Huber Brilliant	lb.	1.35	@

Colors—*(Continued)*

Antimony			
Crimson, R.M.P. No. 3	lb.	$0.50	@
Sulphur free	lb.	.55	@
7-A.	lb.	.35	@
Z-2	lb	.22	@
Vermilion, No. 5	lb.		@
No. 15	lb.		@
Du Pont, R. I.	100 lbs.	2.00	@
6 B.	100 lbs.	.90	@
Brilliant A. C.	100 lbs.	.90	@
Iron Oxides			
bright pure domestic	lb.	.12	@
bright pure English	lb.	.12	@ .14
bright reduced English	lb.	.09½	@ .11
bright reduced domestic	lb.	.10	@
Indian (maroon), pure domestic	lb.	.11	@
Indian (maroon), pure English	lb.	.10½	@ .11
Indian (maroon), reduced English	lb.	.09	@ .10
Indian (maroon), reduced domestic	lb.	.08	@
Oximony	lb.	.13¼	@
Spanish red oxide	lb.	.04	@
Venetian reds	lb.	.02	@ .06
Vermilion, Eng. quicksilver	lb.	1.90	@ 1.98

WHITE

Lithopone	lb.	.05½	@ .05¾
Azolith	lb.	.05½	@ .05¾
Grasselli	lb.	.05¼	@ .05¾
Sterling	lb.		@
Zinc Oxide			
AAA (lead free)	lb.	.06½	@
Azo (factory):			
ZZZ (lead free)	lb.	.06½	@ .07
ZZ (leaded)	lb.	.06¾	@ .06¾
Z (8% leaded)	lb.	.06¼	@ .06¾
French Process			
Green seal	lb.	.10¾	@
Red seal	lb.	.09¾	@
White seal	lb.	.11¾	@

YELLOW

A. & W. yellow	lb.	2.00	@ 4.00
Cadmium sulphide	lb.	1.35	@ 2.00
Chrome	lb.	.17	@ .20
Du Pont N.	100 lbs.	4.00	@
R. R.	100 lbs.	.155	@
Grasselli cadmium	lb.		@
Huber Canary	lb.	3.30	@
Ochre, domestic	lb.	.01½	@ .02¼
Oxide, pure	lb.	.08	@
Zinc imported	lb.	.23	@

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	$21.85	@$24.50
(sacks l.c.l.)	ton	24.50	@
Ammonium carbonate powd.	lb.	.11	@
lump	lb.	.10	@
Asbestine	ton	13.40	@14.50
Barium, carbonate	ton	48.00	@
Barytes, imported	ton	27.00	@34.00
dry ground, white	ton		@
dry ground, off color	ton		@
No. 1 Missouri, water ground and floated, St. Louis	ton	23.00	@
Basofor	lb.	.04½	@
Blanc fixe, dry	lb.	.04¼	@
pulp	ton	60.00	@
Carbon Black			
Aerfloted arrow	lb.	.08	@ .12
Compressed	lb.	.07½	@ .11¾
Uncompressed	lb.	.07	@ .11
Micronex	lb.	.08	@ .12
Carrara filler	ton	26.00	@
Chalk, precipitated	lb.	.04½	@ .04¾
Clay, Blue Ridge, dark	ton		@
Blue Ridge, light	ton		@
China	lb.	.01½	@
Dixie	ton		@
Langford	ton		@
Mineral flour (Florida)	ton		@
Perfection	ton	14.00	@
Suprex	ton	8.00	@20.00
Cotton flock, black	lb.	.10	@ .15
light-colored	lb.	.10	@
white	lb.	.12	@ .30
Glue, high grade	lb.	.23	@ .27
low grade	lb.	.19	@ .23
Infusorial earth	ton	25.00	@
Mica, amber (fact'y)	ton	65.00	@80.00
Pumice stone, powd.	lb.	.02½	@ .04
Rotten stone (bbls.)	lb.	.02½	@ .04½
Soap bark	lb.	.18	@ .19
Soapstone	ton	15.00	@22.00
Talc, domestic	ton	15.00	@25.00
French	ton	18.00	@22.00
Pyrax A	ton		@
B	ton		@
Thermatomic carbon	lb.		@
Titanox	lb	.10	@ .10½
Velvetex	lb.	.04	@ .07

New York Quotations

January 26, 1928

Compounding Ingredients—*(Continued)*

Whiting:			
Commercial	100 lbs.	$0.85	@$1.00
English, cliffstone	100 lbs.	1.50	@
Quaker	ton		@
Snow white	ton		@
Sussex	ton		@
Westminster Brand	100 lbs.		@
Witco (c.l.) (fact'y)	ton	12.00	@
Whiting, imp. chalk	100 lbs.	1.00	@ 1.20
Paris White, Eng. Cliff	100 lbs.	1.50	@ 3.50

Factice—See Rubber Substitutes

Mineral Rubber

Fluxrite (solid)	lb.	.05½	@ .06
Genasco (fact'y)	ton	50.00	@52.00
Gilsonite (fact'y)	ton	37.14	@39.65
Granulated M. R.	ton		@
Hydrocarbon, hard	ton		@
Hydrocarbon, soft	ton		@
Ohmlac Kapak, M. R.	ton	40.00	@90.00
M-4	ton	175.00	@
Paradura (fact'y)	ton	62.50	@65.00
Pioneer, M. R., solid (fac.)	ton	42.00	@45.00
M. R. granulated	ton	52.00	@55.00
Robertson, M. R., solid (fact'y)	ton	34.00	@80.00
M. R. gran. (fact'y)	ton	38.00	@80.00

Oils

Mineral	gal.	.15	@
Spindle	gal.	.20	@
Kerosene	gal.	.15	@
Rapeseed	gal.	1.03	@ 1.04
Red oil, distilled	lb.	.09¼	@ .10¼
Rubber process	gal.	.16	@

Rubber Substitutes or Factice

Black	lb.	.08	@ .14
Brown	lb.	.08	@ .15
White	lb.	.08	@ .165

Softeners

Burgundy pitch	lb.	.04¼	@
Corn oil	lb.	.12	@
Cotton oil	lb.	.10	@
Cycline oil	gal.	.27	@ .36
Degras	lb.	.04	@ .04½
Fluxrite (fluid)	lb.		@
Palm oil (Lagos)	lb.	.08	@
Palm oil (Niger)	lb.	.07¼	@ .07¼
Palm oil (Witco)	lb.	.08½	@

Softeners—*(Continued)*

Petrolatum, snow white	lb.	$0.09¼	@$0.09½
Pigmentar	gal.	.33	@ .38
Pine oil, steam distilled	gal.	.68	@ .70
Plastone	lb.	.39	@
Rosin K	bbl.	10.05	@
Rosin oil	gal.	.36	@
Rubtack	lb.	.08½	@
Shellac, orange	lb.	.70	@
Stearex	lb.	.11	@ .16
Stearic acid, double press'd	lb.	.11¾	@ .12¾
Tackol	lb.	.09	@ .15
Tar (retort)	bbl.	12.50	@13.00

Solvents

Benzol (90%, 7.21 lbs. gal.)	gal.	.26	@ .28
Carbon bisulphide (99.9%, 10.81 lbs. gal.) (drums)	lb.	.05	@ .06
tetrachloride (99.7%, 13.28 lbs. gal.) (drums)	lb.	.07½	@ .08
Gasoline No. 303			
Tankcars	gal.	.14	@
Drums, c. l.	gal.	.25	@
Drums, l. c. l.	gal.	.27	@
Solvent naphtha	gal.	.40	@
Turpentine, spirits	gal.	.60	@ .61
steam distilled	gal.	.56	@ .58

Vulcanizing Ingredients

Sulphur			
Velvet flour (240 lb. bbls.)	100 lbs.	2.95	@ 3.50
(150 lb. bags)	100 lbs.	2.60	@ 3.15
Soft rubber (c.l.)	100 lbs.	2.40	@ 2.75
(l.c.l.)	100 lbs.		@
Superfine commercial flour (210 lb. bbls.)	100 lbs.	2.55	@ 3.10
(100 lb. bags)	100 lbs.	2.20	@ 2.80
Tire brand, superfine	100 lbs.	1.90	@ 2.25
Tube brand, velvet	100 lbs.	2.40	@ 2.75
Vandex (See also Colors—Antimony)	lb.		@

Waxes

Beeswax, white, com	lb.	.55	@
carnauba	lb.	.33	@ .60
ceresine, white	lb.	.12	@
montan	lb.	.07	@ .07½
ozokerite, black	lb.	.27	@
green	lb.	.28	@
Paraffin			
122/124 white crude scale	lb.	.03	@
124/126 white crude scale	lb.	.03½	@
120/122 fully refined	lb.	.05¾	@
125/127 fully refined	lb.	.06	@

BUSES GETTING NUMEROUS

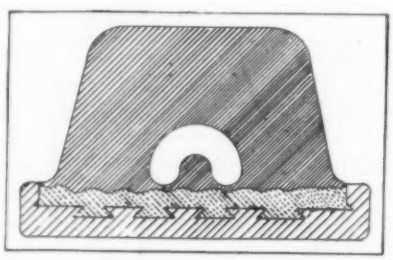
Scarcely three years ago it is said that there were but 1,900 motor vehicles of the omnibus type in the whole United States. Now, according to "Aera," the journal of the American Electric Railway Association, there are 8,350 buses in operation. The greater number are equipped with heavy single and dual pneumatic tires, some having three pairs. The chief reason for the increase is said to be that they have proved to be very "flexible feeders" for rail lines, that they afford cheaper transportation for interurban and thinly-settled sections and that they cost much less to provide and maintain than tracks and railway coaches in cities, although in congested sections the standard streetcar is said to still furnish the most efficient means for taking care of mass transportation.

AMAZONIAN WORKERS AVAILABLE

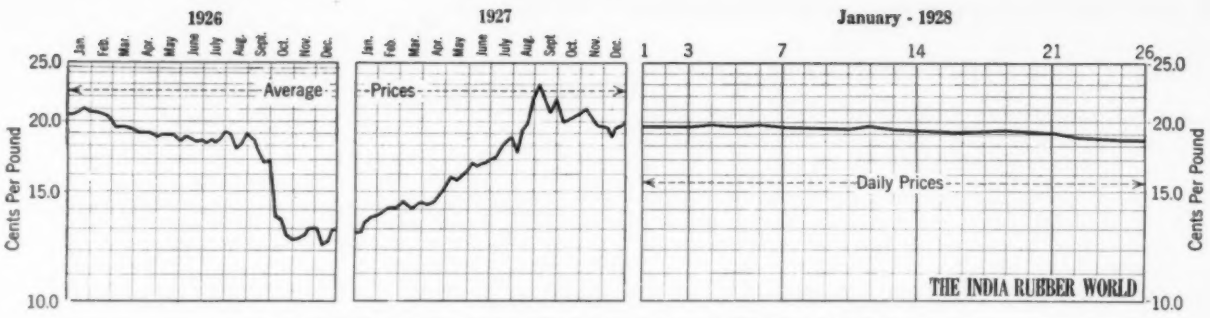
The widespread impression that rubber plantation enterprises in the Valley of the Amazon, such as that projected by Henry Ford, will be much handicapped through scarcity of native labor is not correct, according to the Brazilian rubber authority, Hippolyto de Vasconcellos, F.R.G.S. He says: "At least in Northern Brazil labor is more than plentiful, and will spontaneously stream to any center as soon as profitable work is available. There are, besides, hundreds of thousands of able-bodied men, living idly in the interior of the country, who do no work for the simple reason that there is no work for them to do, while they can thrive on nature's gifts of indigenous vegetable foods, fish and game, in a climate where clothing is only considered as a practice imposed by civilization. These people are docile, law abiding, and quick at learning any manual trade even though skill may be required."

A CUSHION-SOLID TIRE

A new and simplified construction of cushion truck tire is here pictured in cross section vulcanized to a steel base by the usual layer of hard rubber. This tire is the invention of J. F. Cullen of the Columbia Tire Corp., Portland, Ore. Its construction avoids the necessity of using split rims and still retains a uniform air chamber within the tire. The ever increasing use of trucks in freight transportation and the legislation against the use of solid tires under certain conditions, will make the cushion solid tire needed more than ever. Test tires built in the form pictured have been used in trucking service on the Columbia River Highway for several years and are said to possess non-skid qualities of a high order although they have a smooth tread.



Cullen Cushion Tire



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

Market for Cotton and Fabrics

AMERICAN COTTON. The price for middling spot cotton on January 3 was 19.55 cents, as compared with 19.65 cents on December 1. Immediately following Christmas there was a spurt in trading and the price rallied above the 20 cent level. During the first three weeks of January it had a downward tendency, dropping to an average of 19.68 cents the first week, 19.52 cents the second week, and 19.20 cents the third week. Market experts look for continuation of the downward trend. The price of cotton is sufficiently high to lead to the belief that the acreage for the next crop will be increased at least half of the percentage it was reduced last season.

EGYPTIAN COTTON. The continued lack of interest in staple cottons is emphasized by the low basis at which American staples are now selling. Possibly this basis may decline further, but it is certain that either Egyptians are too dear or American staples are too cheap. It should be kept in mind that stocks of American staples are today less than half of what they were a year ago.

In Egypt the supply situation is quite different. Stocks in Alexandria are 50 per cent larger than in January, 1927, nevertheless the market shows remarkable firmness under the holders' belief that continuance of the government acreage restrictions during this year and next will ultimately work in their favor. There seems to be no particular reason, other than the prices of American staples, for a break in the value of Uppers. However, it will be surprising if the Soudan Sakel crop is marketed without any pressure being brought to bear on Egyptian Sakels.

ARIZONA PIMA. The current Pima crop has been picked, ginned and sold. Only a few hundred bales of desirable cotton remain available. It is notable that the real value of this cotton is finally becoming appreciated. There is little doubt that the present season has been satisfactory from the Arizona growers' viewpoint.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market on these goods was fair during January but it is quite too early in the year to gain a broad outlook of the prospects of trade far in advance.

RAINCOAT FABRICS. Most of the fabrics are coated as single textures, which make essential good tensile strength and freedom from knots. These requirements are becoming more important than formerly.

TIRE FABRICS. Since the opening of the year inquiries and contracts were fairly active and mills have been broadening their operations to take care of the business. They show no inclination to meet the desire of consumers for lower prices. Inquiries are practically confined to requirements of the first half year only, although some are considering those of the second half. Contracts for several million pounds were placed each week of January. Production in fabric mills, south and east, has increased. The market is strong and prices steady and firm. According to the statistical department of the Rubber Association of America, the consumption of tire fabric in the United States in 1927 was 148,793,259 pounds.

New York Quotations

January 26, 1928

Drills

38-inch	2.00-yard.....*yard*	$0.17¼ @
40-inch	3.47-yard.....	.10½ @
50-inch	1.52-yard.....	.23½ @
52-inch	1.90-yard.....	.17⅞ @
52-inch	2.20-yard.....	.15½ @
59-inch	1.85-yard.....	.18⅞ @

Ducks

38-inch	2.00-yard S. F.*yard*	.17½ @
40-inch	1.45-yard S. F.....	.23¼ @
72-inch	1.05-yard D. F.....	.36½ @
72-inch	16.66-ounce.....	.39½ @
72-inch	17.21-ounce.....	.40⅞ @

MECHANICAL

Hose and belting....*pound*	.34½ @	.35
Specials	.39½ @	

TENNIS

52-inch	1.35-yard .....*yard*	.26½ @

Hollands

RUBBER TRADE SPECIAL
R. T. 3 A.

31-inch	.....*yard*	.20 @
40-inch	.....	.25 @
50-inch	.....	.45 @

RED SEAL

36-inch	.....	.15½ @
40-inch	.....	.16½ @
50-inch	.....	.25 @

GOLD SEAL

40-inch,	No. 72.....	.20¼ @
40-inch,	No. 80.....	.22 @

Osnaburgs

40-inch	2.35-yard .....*yard*	$0.15½ @
40-inch	2.48-yard	.14⅜ @
40-inch	3.00-yard	.11⅞ @
37-inch	2.42-yard	.14⅜ @

Raincoat Fabrics

COTTON

Bombazine 64 x 60	....*yard*	.11½ @
Bombazine 60 x 48	.....	.10½ @
Plaids 60 x 48	.....	.11⅜ @
Plaids 48 x 48	.....	.11¼ @
Surface prints 64 x 60	.....	.13½ @
Surface prints 60 x 48	.....	.12¾ @
Print cloth 38½-inch, 60 x 64	.....	.08 @

Sheetings, 40-inch

48 x 48, 2.50-yard	.....*yard*	.13¼ @
48 x 48, 2.85-yard	.....	.11½ @
64 x 68, 3.15 yard	.....	.12⅝ @
56 x 60, 3.60-yard	.....	.10½ @
44 x 48, 3.75-yard	.....	.09 @

Sheetings, 36-inch

48 x 48, 5.00-yard	.....*yard*	.07½ @
40 x 44, 6.15-yard	.....	.05⅞ @

Tire Fabrics

SQUARE WOVEN 17¼-ounce

Egyptian, karded.....*pound*		@
Peeler, karded.....		@

BUILDER 23/11

Peeler, karded.....*pound*	$0.44	@

BUILDER 10/5

Peeler, karded.....*pound*	.40	@

CORD 23/5/3

Egyptian, combed ....*pound*	.58	@
Egyptian, karded	.54	@
Peeler, karded, 1 1/16-in.....	.44	@

CORD 23/4/3

Peeler, karded.....*pound*	.46	@

CORD 23/3/3

Peeler, karded.....*pound*	.44	@

CORD 13/3/3

Peeler, karded.....*pound*	.42½	@

CORD 13/3/3

Peeler, karded.....*pound*	.42	@

LENO BREAKER

8-oz. Peeler, karded..*pound*	.42½	@
10-oz. Peeler, karded.....	.42½	@

CHAFER

9.5-oz. Peeler, karded.*pound*	.42	@
12-oz. Peeler, karded.....	.41	@
14-oz. Peeler, karded.....	.40	@

The Cotton Outlook

Increase in Cotton Acreage

A report of the Department of Labor showing agricultural prospects for 1928 indicates that there will be considerable increase in the acreage planted to cotton in 1928 without predicting the percentage increase.

The prospects in the cotton growing states as given in the report are as follows:

Alabama—Farmers are optimistic and the planted acreage will probably be increased somewhat.

Arizona—There will be some diversification of crops and cotton acreage will probably be increased.

Arkansas—There will probably be an increase in acreage planted, especially in those districts where the flood curtailed farming operations.

California—Increased acreage may be expected of cotton.

Florida—Acreage planted will show an increase for 1928.

Georgia—Outlook in agricultural sections bright, and, while the acreage planted will not be materially increased, there will be considerable activity in diversifying crops.

Louisiana—The consensus of opinion is that acreage planted by farmers will be large.

Mississippi—There will be an increase in the planting acreage, especially in those districts where rain and floods retarded planting in 1927.

Missouri—Breaking of land for next year's crops has gone forward satisfactorily and agricultural industry anticipates favorable year.

New Mexico—Acreage planted in cotton will probably be increased.

North Carolina—A slight increase in acreage planted is anticipated.

Oklahoma—Some increase in the acreage planted is anticipated.

South Carolina—A slight increase in acreage planted in agricultural districts is predicted.

Tennessee—An increase in the planted cotton acreage is anticipated.

Texas—Farmers are optimistic and it is very probable that there will be an increase in acreage planted.

Virginia—It is possible that there might be a slight increase in the planted acreage of some crops.

Governmental Cotton Study

Representative Marvin Jones of Texas has introduced a bill in Congress to authorize an appropriation of $50,000 for studies to be conducted by the Department of Agriculture on new uses for cotton. This would expand the work now being done by that department in cooperation with the Department of Commerce and the Cotton Textile Institute. Under the Jones bill statistical work would be done and technical studies be undertaken. These would include new weaves and testing of goods in the industrial field.

Cotton Cloth as Burlap Substitute

In the Senate building basement is an exhibit of compressed cotton bales wrapped in cotton cloth of different sorts, illustrating the adaptability of cotton cloth as a substitute for jute and burlap, one of the new uses proposed for cotton. The exhibit is part of a shipment of cotton baled in North Carolina, compressed in Norfolk, Va., shipped to Bremen, Germany, warehoused there and reshipped from that port to Philadelphia, Pa. This is practically double the ordinary handling. The bales withstood this handling better than others which were wrapped in Indian jute or Egyptian burlap.

Cotton Growing in Africa

The following interesting report is from the London Bureau of the *Daily News Record*. A great future was prophesied for Africa as a cotton producing country when Sir William Himbury, managing director of the British Cotton Growers' Association, who recently returned from a tour of the southern parts of Africa, gave a lecture at the Southport Commons Club recently. He said:

With better transport facilities Nigeria itself was capable of producing 1,500,000 bales of cotton. In Uganda, cotton-growing was becoming a principal occupation of the population, and it is possible for Tanganvika to yield a crop of 250,000 bales, while in the Sudan, 120,000 acres were planted with cotton, and in the near future there was a prospect of 1,000,000 bales from that district.

The possibilities of the Union of South Africa becoming a cotton-growing country were remote. It was possible that it may produce 60,000 to 70,000 bales, but it would never produce as much as half a million. Kenya also has very little prospect of ever becoming a cotton-growing colony owing to its high altitude. Southern Rhodesia was a promising area as a supplementary source of supply, while Northern Rhodesia had fair possibilities. In Nyassaland a hundred thousand bales can be expected.

TIRE INVENTORY — PRODUCTION — DOMESTIC SHIPMENTS

Inventory of pneumatic casings and inner tubes of all types shows a slight increase in November over October. Production and total shipments have declined during the same period. November, 1926, inventory on both pneumatic casings and inner tubes was higher than the November, 1927, figures, but the latter shows an increase in shipments over the former period, with production of pneumatic casings higher and of inner tubes lower in the November, 1927, period.

Solid and cushion tires declined in inventory, production and total shipments during November and, with the exception of inventory, fall below the November, 1926, figures.

Cotton and crude rubber consumption during November was also lighter than in the preceding month.

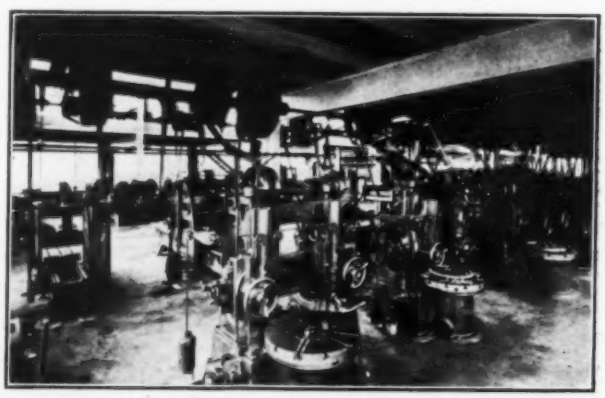
	November, 1927		
	Inventory*	Production	Shipments
Pneumatic casings—all types	7,601,898	3,376,152	3,229,164
Inner tubes—all types	10,188,834	3,581,294	3,541,928
Balloon casings	3,897,982	1,601,372	1,612,347
Balloon inner tubes	4,630,880	1,263,065	1,460,933
High pressure cord casings	3,509,342	1,713,842	1,556,780
High pressure inner tubes	5,557,954	2,318,229	2,080,995
Solid and cushion tires	158,487	31,542	33,901

Cotton and Crude Rubber Consumption November, 1927

	Pounds
Cotton fabric	12,822,414
Crude rubber	33,844,511

*As of November 30, 1927.

Rubber Association figures representing 75 per cent of the industry.



SMALL BORING MILLS ON MAIN FLOOR OF DeMATTIA BROS. MACHINE SHOP, CLIFTON, N. J.

Crude Rubber Arrivals at New York as Reported by Importers

Plantations

DECEMBER 15. By "Anniston City," Far East.

	Cases
General Rubber Co.	7,039
The Meyer & Brown Corp. .....pkgs.	794

DECEMBER 15. By "City of Lincoln," Far East.

General Rubber Co.	3,102
The Meyer & Brown Corp. .....pkgs.	3,000
The Meyer & Brown Corp. .....pkgs.	*250

DECEMBER 15. By "Kasenga," Far East.

General Rubber Co.	448
Littlejohn & Co., Inc. .....pkgs.	400

DECEMBER 16. By "Silverbelle," Far East.

H. A. Astlett & Co.	3,201
Baird Rubber & Trading Co., Inc.	955
General Rubber Co.	6,804
Hood Rubber Co.	480
Littlejohn & Co., Inc.	5,881
The Meyer & Brown Corp. .....pkgs.	3,562
H. Muehlstein & Co., Inc.	690
Poel & Kelly, Inc.	800
Raw Products Co.	277
Rogers Brown & Crocker Bros., Inc.	*156
Rogers Brown & Crocker Bros., Inc.	1,030
Charles T. Wilson Co., Inc.	1,761

DECEMBER 17. By "Chinese Prince," Far East.

H. A. Astlett & Co.	1,935
Baird Rubber & Trading Co., Inc.	325
General Rubber Co.	3,502
Littlejohn & Co., Inc.	3,916
The Meyer & Brown Corp. .....pkgs.	3,002
H. Muehlstein & Co., Inc.	2,541
Poel & Kelly, Inc.	1,456
Raw Products Co.	150
Rogers Brown & Crocker Bros., Inc.	550
Charles T. Wilson Co., Inc.	602

DECEMBER 17. By "Pres. Van Buren," Far East.

Hood Rubber Co.	*280

DECEMBER 18. By "Franconia," Europe.

Littlejohn & Co., Inc.	513

DECEMBER 19. By "Gaasterdyk," Far East.

General Rubber Co.	161
Littlejohn & Co., Inc.	419
The Meyer & Brown Corp. .....pkgs.	319
H. Muehlstein & Co., Inc.	*116
Rogers Brown & Crocker Bros., Inc.	107
Charles T. Wilson Co., Inc.	70

DECEMBER 19. By "Thesus," Far East.

H. A. Astlett & Co.	1,897
Baird Rubber & Trading Co., Inc.	354
General Rubber Co.	2,253
Littlejohn & Co., Inc.	1,545
The Meyer & Brown Corp. .....pkgs.	2,220
H. Muehlstein & Co., Inc.	700
Poel & Kelly, Inc.	294
Raw Products Co.	150
Rogers Brown & Crocker Bros., Inc.	895
Charles T. Wilson Co., Inc.	56

DECEMBER 20. By "Keifuku Maru," London.

Baird Rubber & Trading Co., Inc.	210
H. Muehlstein & Co., Inc.	309

DECEMBER 20. By "Minnesota," London.

Baird Rubber & Trading Co., Inc.	306
General Rubber Co.	228
Littlejohn & Co., Inc.	1,153
The Meyer & Brown Corp. .....pkgs.	660
Poel & Kelly, Inc.	848
Raw Products Co.	257
Charles T. Wilson Co., Inc.	293

DECEMBER 21. By "Matra," Far East.

General Rubber Co.	866
Hood Rubber Co.	*185
Littlejohn & Co., Inc.	24
Poel & Kelly, Inc.	26
Raw Products Co.	224
Charles T. Wilson Co., Inc.	199

DECEMBER 22. By "Bokuya Maru," Far East.

H. A. Astlett & Co.	†100

DECEMBER 22. By "Huronian." London.

Hood Rubber Co.	*87

DECEMBER 23. By "Bergersdijk," Far East.

Hood Rubber Co.	*293

DECEMBER 23. By "Jacob Christensen," Antwerp.

Hood Rubber Co.	*78

DECEMBER 24. By "Lancastria," Far East.

Poel & Kelly, Inc.	307

*Arrived at Boston.
†Arrived at Los Angeles

DECEMBER 24. By "Ryndam," Europe.

	Cases
Littlejohn & Co., Inc.	59
The Meyer & Brown Corp. .....pkgs.	101
H. Muehlstein & Co., Inc.	50
Poel & Kelly, Inc.	121

DECEMBER 24. By "Talisman," Far East.

Baird Rubber & Trading Co., Inc.	1,011
Littlejohn & Co., Inc.	1,554
Poel & Kelly, Inc.	280

DECEMBER 25. By "Silver Cedar," Far East.

H. A. Astlett & Co.	†250

DECEMBER 26. By "Albertic," Europe.

The Meyer & Brown Corp. .....pkgs.	478

DECEMBER 26. By "Aurania," Europe.

The Meyer & Brown Corp. .....pkgs.	15
Poel & Kelly, Inc.	2,423
Raw Products Co.	41
Rogers Brown & Crocker Bros., Inc.	510

DECEMBER 26. By "City of Edinburgh," Far East.

H. A. Astlett & Co.	1,322
General Rubber Co.	1,862
Littlejohn & Co., Inc.	784
The Meyer & Brown Corp. .....pkgs.	212
H. Muehlstein & Co., Inc.	66
Poel & Kelly, Inc.	150
Charles T. Wilson Co., Inc.	182

DECEMBER 26. By "Minnetonka," Europe.

H. A. Astlett & Co.	143
Baird Rubber & Trading Co., Inc.	142
The Meyer & Brown Corp. .....pkgs.	145
Charles T. Wilson Co., Inc.	1,412

DECEMBER 26. By "Vechtdyk," Far East.

H. A. Astlett & Co.	1,824
General Rubber Co.	3,023
Haldane & Co., Inc.	162
Hood Rubber Co.	*664
Littlejohn & Co., Inc.	2,895
The Meyer & Brown Corp. .....pkgs.	1,206
H. Muehlstein & Co., Inc.	2,500
Poel & Kelly, Inc.	1,029
Rogers Brown & Crocker Bros., Inc.	820
Charles T. Wilson Co., Inc.	431

DECEMBER 27. By "American Trader," London.

Baird Rubber & Trading Co., Inc.	405
The Meyer & Brown Corp. .....pkgs.	991
H. Muehlstein & Co., Inc.	600
Poel & Kelly, Inc.	3,385
Raw Products Co.	1,087

DECEMBER 27. By "Mississippi," London.

Hood Rubber Co.	*313

DECEMBER 27. By "Pres. Hayes," Far East.

H. A. Astlett & Co.	1,785
General Rubber Co.	889
Haldane & Co., Inc.	450
Littlejohn & Co., Inc.	1,444
The Meyer & Brown Corp. .....pkgs.	1,756
The Meyer & Brown Corp. .....pkgs.	*112
H. Muehlstein & Co., Inc.	800
Poel & Kelly, Inc.	100
Raw Products Co.	556
Rogers Brown & Crocker Bros., Inc.	*52
Rogers Brown & Crocker Bros., Inc.	1,130
Charles T. Wilson Co., Inc.	264

DECEMBER 28. By "London Corporation," London.

Baird Rubber & Trading Co., Inc.	106

DECEMBER 28. By "Sheridan," Brazil.

General Rubber Co.	1,815

DECEMBER 30. By "Silverfir," Far East.

H. Muehlstein & Co., Inc.	†260

JANUARY 1. By "Pres. Madison," Far East.

H. A. Astlett & Co.	†70

JANUARY 3. By "Adriatic," Liverpool.

Baird Rubber & Trading Co., Inc.	136
The Meyer & Brown Corp. .....pkgs.	105

JANUARY 3. By "American Shipper," Europe.

General Rubber Co.	2,087

JANUARY 3. By "Antonia," Europe.

General Rubber Co.	2,097

JANUARY 3. By "Vardulia," Far East.

Hood Rubber Co.	*534
Rogers Brown & Crocker Bros., Inc.	*784

JANUARY 3. By "Volendam," Far East.

General Rubber Co.	118
Haldane & Co., Inc.	69
The Meyer & Brown Corp. .....pkgs.	100
Poel & Kelly, Inc.	80

JANUARY 4. By "Coahoma County," Europe.

	Cases
Littlejohn & Co., Inc.	261

JANUARY 4. By "Minnekahda," London.

Baird Rubber & Trading Co., Inc.	145
Bierrie & Co., Inc.	260
General Rubber Co.	1,914
Littlejohn & Co., Inc.	3,216
The Meyer & Brown Corp. .....pkgs.	1,483
Poel & Kelly, Inc.	320
Charles T. Wilson Co., Inc.	1,410

JANUARY 4. By "Ortega," Mexico.

Charles T. Wilson Co., Inc.	560

JANUARY 5. By "Halesius," Far East.

General Rubber Co.	21
The Meyer & Brown Corp. .....pkgs.	105
Charles T. Wilson Co., Inc.	28

JANUARY 5. By "Suffern," Europe.

H. A. Astlett & Co.	195

JANUARY 6. By "Bolton Castle," Far East.

H. A. Astlett & Co.	2,558
Baird Rubber & Trading Co., Inc.	298
Baird Rubber & Trading Co., Inc.	*132
General Rubber Co.	7,792
Hood Rubber Co.	*70
Littlejohn & Co., Inc.	3,241
The Meyer & Brown Corp. .....pkgs.	2,189
H. Muehlstein & Co., Inc.	1,450
Poel & Kelly, Inc.	531
Raw Products Co.	406
Charles T. Wilson Co., Inc.	1,233

JANUARY 6. By "City of Eastbourne," Far East.

H. A. Astlett & Co.	1,852
Baird Rubber & Trading Co., Inc.	250
General Rubber Co.	1,977
Haldane & Co., Inc.	500
Hood Rubber Co.	622
Littlejohn & Co., Inc.	3,091
The Meyer & Brown Corp. .....pkgs.	3,820
Poel & Kelly, Inc.	456
Raw Products Co.	832
Rogers Brown & Crocker Bros., Inc.	1,470
Charles T. Wilson Co., Inc.	197

JANUARY 6. By "Mineric," Far East.

H. A. Astlett & Co.	913
General Rubber Co.	798
Haldane & Co., Inc.	100
Littlejohn & Co., Inc.	882
The Meyer & Brown Corp. .....pkgs.	40
H. Muehlstein & Co., Inc.	*280
Raw Products Co.	112
Charles T. Wilson Co., Inc.	302

JANUARY 7. By "Boschdyk," Far East.

General Rubber Co.	152
Littlejohn & Co., Inc.	280
The Meyer & Brown Corp. .....pkgs.	65
Poel & Kelly, Inc.	172
Raw Products Co.	48

JANUARY 7. By "London Exchange," London.

Baird Rubber & Trading Co., Inc.	274
Littlejohn & Co., Inc.	1,300

JANUARY 7. By "Nortonian," London.

Hood Rubber Co.	*226

JANUARY 7. By "Sac City," Antwerp.

Bierrie & Co., Inc.	273
Littlejohn & Co., Inc.	751
The Meyer & Brown Corp. .....pkgs.	142
Raw Products Co.	280

JANUARY 9. By "City of Bombay," Far East.

H. A. Astlett & Co.	2,548
Baird Rubber & Trading Co., Inc.	250
General Rubber Co.	3,798
Hood Rubber Co.	*136
Littlejohn & Co., Inc.	3,706
The Meyer & Brown Corp. .....pkgs.	2,035
H. Muehlstein & Co., Inc.	536
Poel & Kelly, Inc.	330
Raw Products Co.	136
Rogers Brown & Crocker Bros., Inc.	1,663
Charles T. Wilson Co., Inc.	310

JANUARY 9. By "Cuba Maru," Far East.

H. A. Astlett & Co.	2,542
Baird Rubber & Trading Co., Inc.	650
General Rubber Co.	2,499
Littlejohn & Co., Inc.	3,363
The Meyer & Brown Corp. .....pkgs.	3,804
H. Muehlstein & Co., Inc.	500
Poel & Kelly, Inc.	919
Raw Products Co.	300
Rogers Brown & Crocker Bros., Inc.	1,097
Charles T. Wilson Co., Inc.	630

JANUARY 9. By "Minnewaska," Far East.

General Rubber Co.	28
Poel & Kelly, Inc.	240

	Cases
JANUARY 10. By "Pres. Polk," Far East.	
H. A. Astlett & Co.	2,705
Baird Rubber & Trading Co., Inc.	198
Bierrie & Co., Inc.	357
General Rubber Co.	4,475
Haldane & Co., Inc.	150
Hood Rubber Co.	127
Littlejohn & Co., Inc.	2,740
The Meyer & Brown Corp. .....pkgs.	2,575
H. Muehlstein & Co., Inc.	1,000
Poel & Kelly, Inc.	512
Raw Products Co.	592
Rogers Brown & Crocker Bros., Inc.	662
Charles T. Wilson Co., Inc.	305
JANUARY 11. By "Elmbank," Far East.	
H. A. Astlett & Co.	100
Bierrie & Co., Inc.	200
Haldane & Co., Inc.	442
Littlejohn & Co., Inc.	200
The Meyer & Brown Corp. .....pkgs.	50
Charles T. Wilson Co., Inc.	497
JANUARY 11. By "Mahsud," Far East.	
H. A. Astlett & Co.	660
General Rubber Co.	880
The Meyer & Brown Corp. .....pkgs.	492
The Meyer & Brown Corp. .....pkgs.	*168
H. Muehlstein & Co., Inc.	800
Poel & Kelly, Inc.	330
Rogers Brown & Crocker Bros., Inc.	1,422
JANUARY 12. By "Hallfried," Far East.	
Raw Products Co.	100
JANUARY 12. By "Tapanoeli," Far East.	
H. A. Astlett & Co.	1,059
Baird Rubber & Trading Co., Inc.	408
N. Diamond & Co., Inc.	35
General Rubber Co.	5,078
Haldane & Co., Inc.	99
Hood Rubber Co.	*388
Littlejohn & Co., Inc.	5,537
The Meyer & Brown Corp. .....pkgs.	1,581
H. Muehlstein & Co., Inc.	1,000
Poel & Kelly, Inc.	1,440
Rogers Brown & Crocker Bros., Inc.	420
Charles T. Wilson Co., Inc.	514
JANUARY 14. By "Grootendyk," Amsterdam.	
Haldane & Co., Inc.	54

	Cases
JANUARY 15. By "Mahronda," Ceylon.	
Hood Rubber Co.	*85
The Meyer & Brown Corp. .....pkgs.	*224
JANUARY 15. By "Malayan Prince," Far East.	
Bierrie & Co., Inc.	270
Littlejohn & Co., Inc.	7,150
The Meyer & Brown Corp. .....pkgs.	*320
Rogers Brown & Crocker Bros., Inc.	1,665
Rogers Brown & Crocker Bros., Inc.	*210
Charles T. Wilson Co., Inc.	500
JANUARY 15. By "Pres. Jackson," Far East.	
H. A. Astlett & Co.	†120

Africans

DECEMBER 16. By "Ala," Antwerp.	
N. Diamond & Co., Inc.	64
DECEMBER 23. By "Jacob Christensen," Antwerp.	
Hood Rubber Co.	*3,248
DECEMBER 23. By "Winifredian," Europe.	
The Meyer & Brown Corp. .....pkgs.	274
DECEMBER 24. By "Mercier," Europe.	
The Meyer & Brown Corp. .....pkgs.	270
DECEMBER 24. By "West Irmo," Africa.	
Littlejohn & Co., Inc.	217
DECEMBER 26. By "Aurania," Europe.	
Littlejohn & Co., Inc.	9
DECEMBER 26. By "Keifuku Maru," Europe.	
Littlejohn & Co., Inc.	212
DECEMBER 26. By "La Bourdonnais," Europe.	
Littlejohn & Co., Inc.	556
The Meyer & Brown Corp. .....pkgs.	187
DECEMBER 28. By "Pennland," Antwerp.	
Baird Rubber & Trading Co., Inc. ....bags	138
The Meyer & Brown Corp. .....pkgs.	835
DECEMBER 28. By "Sheridan," Brazil.	
General Rubber Co.	5

	Cases
JANUARY 1. By "Lapland," Europe.	
The Meyer & Brown Corp. .....pkgs.	444
JANUARY 5. By "Boschdyk," Europe.	
Littlejohn & Co., Inc.	222
JANUARY 9. By "Devonian," Europe.	
The Meyer & Brown Corp. .....pkgs.	605
JANUARY 10. By "Sacandaga," Bordeaux.	
Hood Rubber Co.	797

Balata

DECEMBER 27. By "Sheridan," Peru.	
Paul Bertuch & Co., Inc.	55

Guayule

DECEMBER 21. By "Camaguey," Mexico.	
Continental Rubber Co. of New York	1,680
DECEMBER 27. By "Monterey," Mexico.	
Continental Rubber Co. of New York	1,680
DECEMBER 30. By "Tela," Mexico.	
Continental Rubber Co. of New York	1,120

Gutta Siak

DECEMBER 16. By "City of Lincoln," Far East.	
N. Diamond & Co., Inc.	17
DECEMBER 16. By "Galucus," Far East.	
N. Diamond & Co., Inc.	17

Rubber Latex

	Gallons
DECEMBER 19. By "Silverbelle," Far East.	
General Rubber Co.	77,317
JANUARY 6. By "Bolton Castle," Far East.	
General Rubber Co.	15,683

*Arrived at Boston
†Arrived at Los Angeles

Paras and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Miscel. Cases
DECEMBER 28. By "Sheridan," Brazil.					
H. A. Astlett & Co.	1,450	2	404	175	...
Paul Bertuch & Co., Inc.	475	176	19	63	...
General Rubber Co.	1,072	99	545	65	29
Littlejohn & Co., Inc.	1,254	...	187	164	...
The Meyer & Brown Corp.	471	...	...	...	...
JANUARY 13. By "Francis," Brazil.					
Baird Rubber & Trading Co., Inc.	94	...	...	...	...
Paul Bertuch & Co., Inc.	455	32	250	90	...
Littlejohn & Co., Inc.	1,031	60	426	43	...
The Meyer & Brown Corp.	64	...	90	...	...

World Rubber Absorption—Net Imports

Long Tons—1927

	July	August	September	October	November
Australia	900	650	772	908	836
Belgium	436	604	552	465	749
Canada	2,104	2,013	1,850	1,790	1,916
Czechoslovakia	236	123	272	363	.....
Denmark	43	56	50	37	82
Finland	43	38	123	132	67
France	2,384	2,795	1,956	4,302	2,837
Germany	2,899	3,119	2,891	4,202	4,209
Italy	1,007	1,274	684	1,021	.....
Japan	1,505	1,970	2,025	1,966	.....
Netherlands	66	—63	—32	156	298
Norway	39	46	95	42	52
Russia	415	386	518	1,075	1,312
Spain	177	138	155	153	.....
Sweden	102	172	183	190	273
United Kingdom	1,116	3,463	7,800	5,888	1,687
United States	35,720	31,001	28,704	27,671	36,128
United States (Guayule)	399	348	463	455	496
Totals	49,591	48,133	49,061	50,816	.....

— Minus quantity; excess of reexports over imports.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

London Stocks, September, 1927

	Landed Tons for Nov.	Delivered Tons for Nov.	Stocked November 30 Tons 1927	Tons 1926	Tons 1925
LONDON					
Plantation	7,783	10,311	66,862	43,879	3,747
Other grades	51	35	136	103	33
LIVERPOOL					
Plantation	†581	†750	†2,846	†1,515	†466
Total tons, London and Liverpool	8,415	11,096	69,844	45,497	4,246

†Official returns from the six recognized public warehouses.

World Rubber Production—Net Exports

Long Tons—1927

	July	August	September	October	November	December
British Malaya	11,250	13,266	17,740	14,045	8,417	14,320
Ceylon	4,018	5,357	4,911	5,245	4,464	4,130
India and Burma	827	688	479	802	1,277	.....
Sarawak	859	1,133	645	721	1,241	946
British Borneo	*500	*500	*500	*500	*500	*500
Siam	333	546	498	452	600	664
Java and Madura	4,771	4,355	3,635	3,810	4,127	.....
Sumatra East Coast	6,140	6,683	6,052	7,755	6,587	.....
Other N. E. Indies	11,663	12,054	10,059	13,633	14,393	.....
French Indo-China	519	716	497	775	683	1,191
Amazon Valley	1,713	2,004	2,474	2,704	2,547	3,321
Other America	95	102	176	*100	*100	*100
Mexican Guayule	399	348	463	455	496	342
Africa	621	519	574	*600	*600	*600
Totals	43,708	48,271	48,703	51,597	46,032	.....

* Estimate.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

Plantation Rubber Exports from Malaya*

January 1 to November 30, 1927

	From Singapore Tons	From Penang Tons	From Malacca Tons
To United Kingdom	8,202.83	10,638.77	7,908.47
British Possessions	4,085.49	143.86	216.37
Continent of Europe	14,463.11	1,986.27	2,933.42
United States	141,668.69	26,304.08	9,801.34
Japan	12,529.04	2,161.50	2,451.70
Other Countries	89.52	.....	.....
Totals	181,038.68	41,234.48	23,311.30

* Excluding all foreign transhipment.